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UNITED STATES OF AMERICA.

EIGHTH EDITION.

PART FOURTH.

W. H. WALMSLEY.

ISAAC COLLINS.

MORRIS LARIE.

AN ILLUSTRATED CATALOGUE
OF
PHOTOGRAPHIC CAMERAS,
LENSES,
AND OTHER APPARATUS AND MATERIALS
FOR PHOTOGRAPHY.



W. H. WALMSLEY & Co.,

SUCCESSORS TO R. & J. BECK,

No. 1016 CHESTNUT STREET,
PHILADELPHIA.

—PRICE, TEN CENTS.—

NOTICE.

There are some changes of prices and numbers in the present edition of this Catalogue; and all *former editions are superseded by this*. In ordering, please mention the number of the edition.

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Institutions of Learning and Scientific Societies, being entitled by law to import instruments for their own use *Duty Free*, we are prepared to execute all such orders promptly, not only for apparatus of our own manufacture, but that of any other makers in Europe; and to deliver the same at makers' Catalogue prices, free of all shipping or freight charges.

Having a full stock of all the articles enumerated in this Catalogue always in store, we are prepared to fill all orders with the utmost promptness, a matter of great importance to many, avoiding the vexatious delays formerly so common.

W. H. WALMSLEY & CO.

April 1, 1888.

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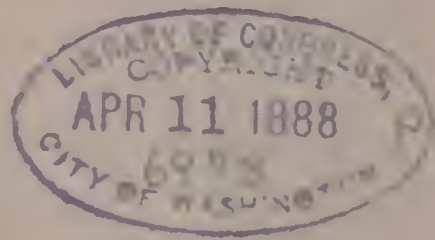
A CLASSIFIED AND ILLUSTRATED
PRICE-LIST
OF
PHOTOGRAPHIC CAMERAS,
LENSES,

AND OTHER
APPARATUS AND MATERIALS

FOR THE USE OF
AMATEUR AND PROFESSIONAL PHOTOGRAPHERS.

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"Vino Bono Non Opus Est Hedera."



✓
W. H. WALMSLEY & CO.,

SUCCESSORS TO, AND SOLE AGENTS FOR,
R. & J. BECK,

No. 1016 CHESTNUT STREET,
PHILADELPHIA.

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INTRODUCTION.

The love of pictures and the desire to reproduce in some manner the lineaments of a beautiful or beloved form, or striking bit of landscape are universal passions of mankind. They have existed from the remotest antiquity, and all that is left to tell of the existence of races long since passed away are their rude carvings and drawings upon implements of stone and pottery found in their tenantless graves. But, with all their longings and aspirations, how few possessed the ability to give their mental pictures a more tangible shape until the Genius of the Camera appeared and bade them use the means he so freely placed at their disposal? Then, indeed, a new world was opened to our gaze, and, with the introduction of Dry Plates, the hitherto impossible was made so utterly an every-day matter that in viewing the accurate scenes of foreign lands presented to our view, we lose sight of the means whereby they were procured and thus brought home to us. The magic exists none the less, however, and can be turned to account by any one who possesses an eye for the picturesque and beautiful, and the patience to master the few preliminary difficulties that go before all achievements.

Photography is not a Fine Art, but is a most excellent handmaiden thereto, and many eminent artists do not hesitate to call in its aid to their inspirations. It educates the eye, teaches one to seek the salient points in a landscape or bit of architecture, and impresses the same upon the memory in a wonderful and imperishable manner. It is a fascinating pursuit, entices its devotees to seek a closer communion with nature, affords needed exercise to the man of sedentary habits, promotes digestion, and carries one in the dismal winter months back to many a summer ramble whilst looking on the pictured mementos of the same. What if some plates are "fogged," others "over" or "under exposed," or the "developer" has gone astray, there will still be found a good balance on the right side of the account.

And it is an inexpensive "hobby." Look over the succeeding pages, and note for what an insignificant outlay of money an "Outfit" capable of producing finished work may be procured. We have seen pictures made with ten-dollar Cameras of which any worker might be proud. Our advice to all is to purchase at the outset the best Camera and Lenses they can afford, but not to forego the possession of *any*, because they cannot buy the more costly ones. The lowest-priced instrument herein described will do most excellent and satisfactory work if properly handled; the intelligent and enthusiastic operator is as important a factor in the proceeding as the tools with which he works.

In compiling this Catalogue of Cameras and other articles pertaining to Photography, it has been our aim to gather together in a succinct and classified manner the best of everything now attainable relating to Amateur Photography and the needs of its devotees. In no other Commercial Price List published on either side of the Atlantic is there such a varied fund of information on the subject to be found; and it is the *only* one in which any classified system is attempted. Beginning with the lowest-priced Cameras (but cheap and good), the reader is led through a tempting array of the latest devices and appliances up to the very best, regardless of cost. Then come the various parts and appliances which make up an "outfit"—Lenses, Plate Holders, Tripods, etc., succeeded by Developing and Printing outfits, to suit all desires and all purses—ending with a valuable selection of Standard formulæ of various sorts. The mysteries of Photo-Micrography are explained in a clear and concise manner, and cameras specially designed for this purpose are illustrated and described. Each article is designated by its own particular number, so that in ordering, it is merely necessary to give the number, without going to the trouble of writing out its name or description. The price of each article is also given, and the same will be strictly adhered to; one price to all, and that the lowest, at which first-class goods only (for we deal in no others), can be afforded. We guarantee every article sold, and if any is not satisfactory, will in every instance make it so. Although scarcely three years have elapsed since we added this branch to our business, we have already attained the position of the leading house in Amateur Photographic requisites in America; which has only been reached, and can be retained, by keeping the best of everything, at the lowest prices, and dealing fairly with every one.

R. & J. Beck (of London—of which famous house we are the only American representatives) have added the making of Photographic Cameras and Lenses to their extensive business, and we now have a full supply of same for the Amateur and Professional Photographer. The same care and skill which have kept their Microscope Objectives in the van for more than the third of a century has been given to the construction of the Photographic Lenses. Their new Rapid Autograph Lenses, Nos. 2760-68 of this List, are unsurpassed by any, whilst their cost is very moderate. We are also direct importers of the Lenses of Ross, Dallmeyer, and Darlot; those of the latter bearing our firm name engraved on them by the maker. We import our Sensitized Albumen papers, Pyrogallie Acid, and some other chemicals direct from the makers in Paris, whilst those of domestic brands are obtained from the manufacturers, fresh and pure.

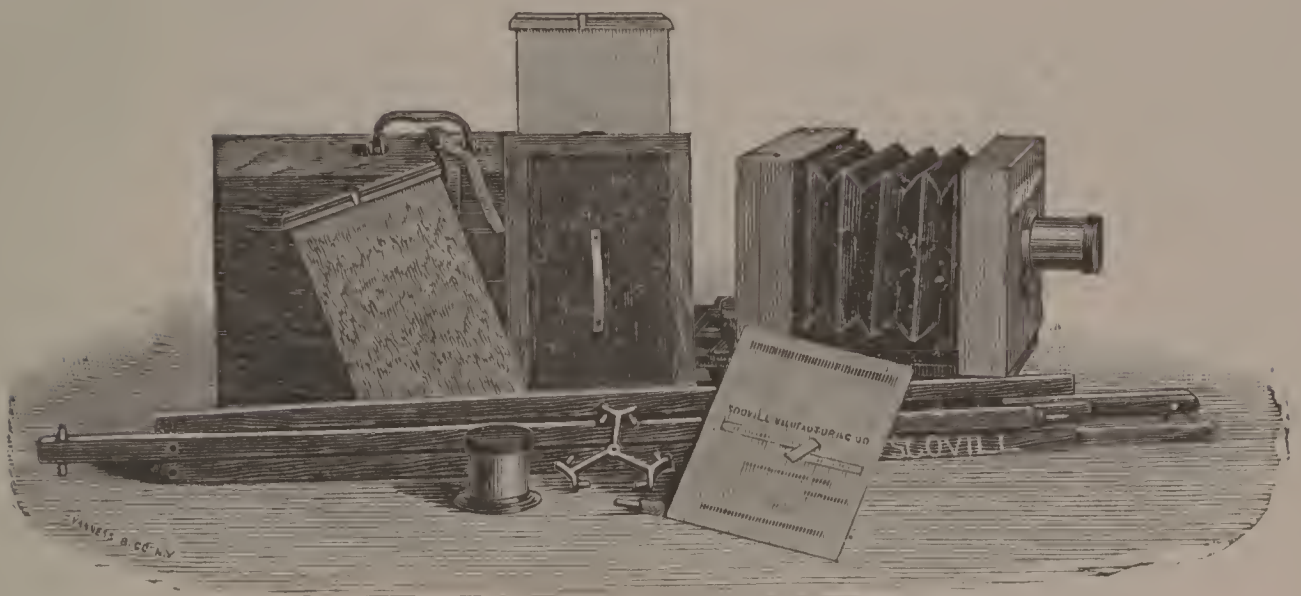
We have recently added a Dark Room to our establishment, replete with every convenience, the use of which is freely offered to our friends and customers, to whom every instruction will be given by competent assistants, without charge. From those at a distance who cannot visit our establishment in person, we solicit inquiries, which will be carefully and fully answered by return post.

The mechanical part of Photography, with modern Dry Plates, is very easily acquired, and presents no serious difficulties to any. It is practiced by very many ladies all over the country, and has as enthusiastic devotees among the fair sex as with the opposite one. It promotes digestion, gives one a taste for healthy exercise, and enables him to preserve many a scene for after contemplation that would otherwise be buried in oblivion. Therefore, we say to one and all, old and young, be not discouraged by seeming difficulties in the way, but try for yourselves. Our Mr. Walmsley is now preparing a little practical work, giving valuable hints to beginners, not found elsewhere in connected form, and we hope soon to announce its appearance.

W. H. WALMSLEY & CO.

CAMERAS.

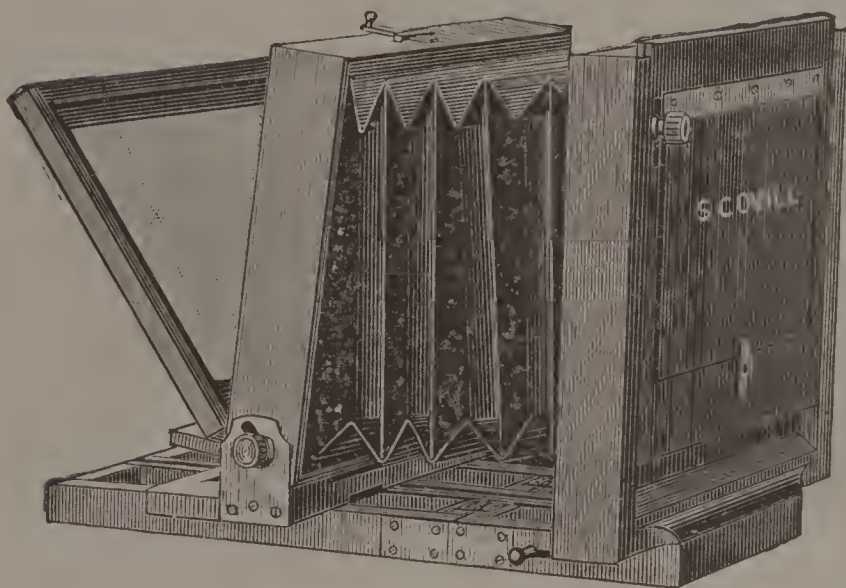
FAVORITE APPARATUS OUTFITS.



Nos. 2500-2513.

No.		PRICE.
2500.	OUTFIT A. For making 4x5-inch Pictures,	\$10 00
	This outfit comprises a FAVORITE Camera, with rubber bellows and folding platform, one Double Dry Plate Holder reversible, Achromatic View Lens, Folding Tripod, and Carrying Case.	
2501.	OUTFIT B. For making 5x8-inch Pictures,	12 00
	The same as Outfit A in all respects excepting size.	
2502.	OUTFIT C. For making 5x8-inch and Stereoscopic Pictures,	18 50
	The same in all respects as Outfit B, with the addition of a pair of matched Lenses for making Stereoscopic Pictures.	
2503.	OUTFIT D. For making Pictures 6½x8½ inches,	14 00
	The same as Outfit A in all respects excepting size.	
2504.	OUTFIT E. For making Pictures 8x10 inches,	26 00
	The same as Outfit A in all respects excepting size.	
2505.	OUTFIT A A. Complete for Field Service,	12 25
	This equipment consists of Outfit A, with the addition of one Focusing Cloth, one Ruby Lantern, and one dozen 4x5 Dry Plates.	
2506.	OUTFIT B B. Complete for Field Service,	15 00
	This equipment consists of Outfit B, with the addition of one Focusing Cloth, one Ruby Lantern, and one dozen 5x8 Dry Plates.	
2507.	OUTFIT C C. Complete for Field Service,	21 50
	This equipment consists of Outfit C, with the addition of one Focusing Cloth, one Ruby Lantern, and one dozen 5x8 Dry Plates.	
2508.	OUTFIT D D. Complete for Field Service,	18 00
	This equipment consists of Outfit D, with the addition of one Focusing Cloth, one Ruby Lantern, and one dozen 6½x8½ Dry Plates.	

WATERBURY OUTFITS.



Nos. 2509-2512.

THE WATERBURY CAMERAS which we have introduced this season (1886) are, like other cameras and apparatus now made by the American Optical Company—unapproachable!

As we have had urgent requests for 4×5 and $6\frac{1}{2}\times 8\frac{1}{2}$ sizes of Waterbury Outfits, we are now prepared to announce our readiness to supply such in addition to the 5×8 size. For the benefit of those who have not seen a Waterbury Camera, we present the above illustration, and add that these cameras are made of mahogany. They have rubber bellows, folding platform, single swing, vertical shifting front, side latch for making bed rigid instantaneously, and are as light and compact as substantial cameras can be constructed.

No.		PRICE.
2509.	WATERBURY OUTFIT, for 4×5 -inch Pictures,	\$12 00
	This Outfit comprises the following articles:	
	1 Single Swing Camera, described above.	
	1 New Style Double Dry Holder.	
	1 Wooden Carrying Case.	
	1 Taylor Tripod.	
	1 No. 1 Waterbury Lens <i>with a set of Stops</i> .	
2510.	WATERBURY OUTFIT, for $4\frac{1}{4}\times 5\frac{1}{2}$ -inch Pictures,	14 00
	This Outfit is the same as 2509 in all respects, excepting size.	
2510*.	WATERBURY OUTFIT, for $4\frac{1}{4}\times 6\frac{1}{2}$ -inch Pictures,	15 00
	This Outfit is the same as 2509 in all respects, excepting size.	
2511.	WATERBURY OUTFIT, for 5×7 -inch Pictures,	16 00
	This Outfit is the same as 2509 in all respects, excepting size.	
2511*.	WATERBURY OUTFIT, for 5×8 -inch Pictures,	16 50
	This Outfit is the same as 2509 in all respects, excepting size.	
2512.	WATERBURY OUTFIT, for $6\frac{1}{2}\times 8\frac{1}{2}$ -inch Pictures,	20 00
	This Outfit is the same as 2509 in all respects, excepting size.	

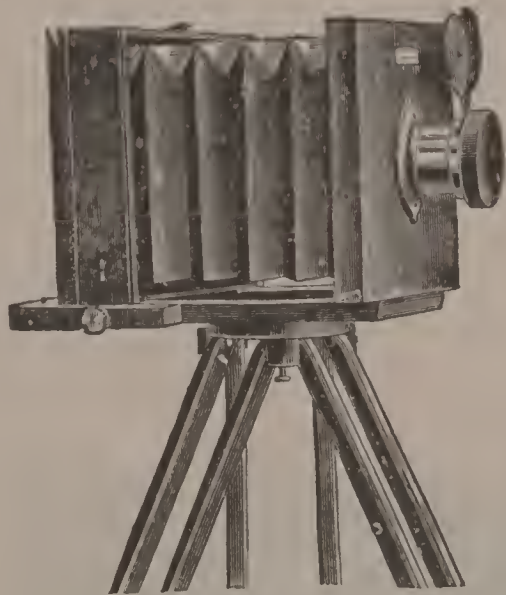
In cases where exposed Plates are taken to a photographer's and there developed, printed from, and mounted on cardboard, any of the above equipments lack nothing that is essential. We recommend the amateur to finish his own pictures, and hence to procure one of the following equipments, which are complete in every requisite for making the highest class pictures, lacking nothing for view taking, development, and the printing and mounting of photographs.

No.		PRICE.
2515.	EQUIPMENT A A A. Complete in every requisite,	\$20 00
	This equipment consists of Outfit A, with Developing Outfit No. 3103 and Printing Outfit No. 3110, for 4x5 Pictures.	
2516.	EQUIPMENT B B B. Complete in every requisite,	24 50
	This equipment consists of Outfit B, with Developing Outfit No. 3104 and Printing Outfit No. 3111, for 5x8 Pictures.	
2517.	EQUIPMENT C C C. Complete in every requisite,	31 00
	This equipment consists of Outfit C, with Developing Outfit No. 3104 and Printing Outfit No. 3111, for 5x8 and Stereoscopic Pictures.	
2518.	EQUIPMENT D D D. Complete in every requisite,	28 00
	This equipment consists of Outfit D, with Developing Outfit No. 3105 and Printing Outfit No. 3112, for 6½x8½-inch Pictures.	

"NEW MODEL" CAMERAS.



No. 2520. 4x5.



No. 2521. 5x8.

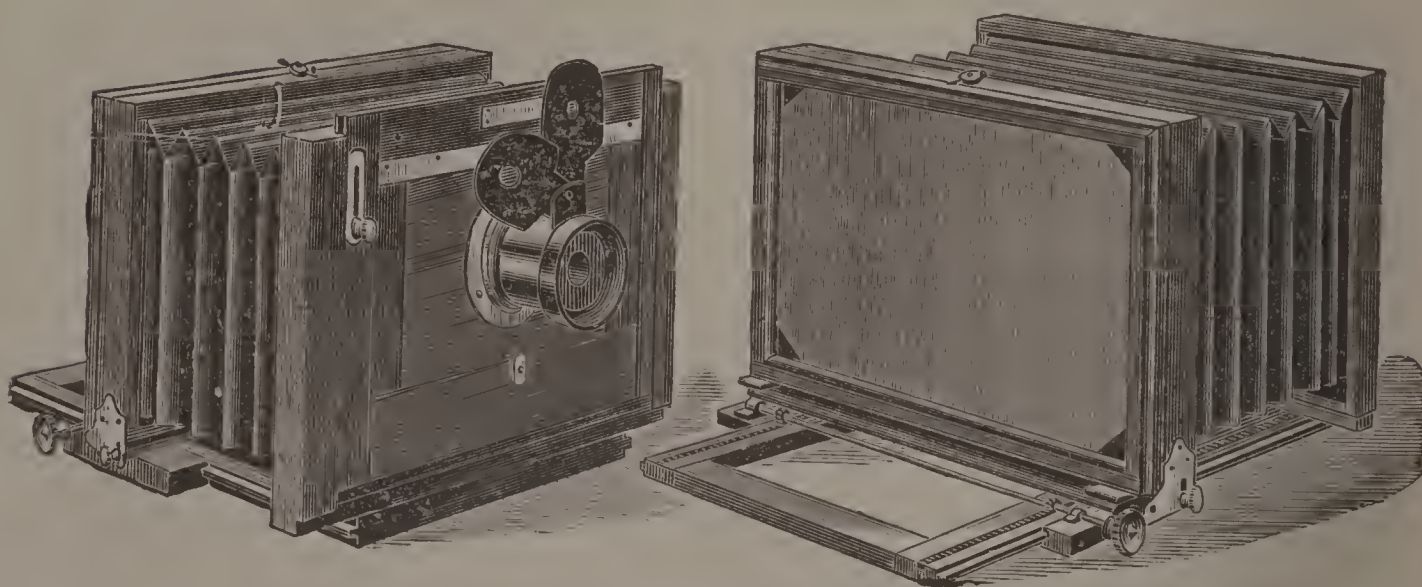
These Cameras are designed especially for the million—well made, accurate, reliable, easily worked, simple, practical, and cheap.

The Camera-box is made of the best seasoned cherry, well finished in the natural wood. The Focusing Screen is *hinged* to camera-back, which is more convenient and less liable to loss and breakage than a removable one. The back with screen, slides upon the bed, being fastened by a set screw when the focus has been obtained. The Tripod is attached to the bed by a screw which, while it allows the swinging of box horizontally, or entire removal, remains in its socket at all times, thus obviating danger of loss. The lens is of remarkably fine quality, giving sharp definition and great depth of focus. The diaphragms are *removable*—a point of the greatest importance, to compensate for the varying strength of different lights. This is the only low-priced Camera in the market having this improvement. The Plate Holder is made on a greatly improved plan, doing

away with ledges, and thus exposing all of the plate to the action of the light, making a picture the full size of plate. By the old method a quarter of an inch all around was lost. The Tripod Legs are jointed, capable of folding to half length, but when in position are rigid and firm. A Carrying Case with handle is furnished with each outfit, and will take four Holders, a Focusing Cloth, Lens Cap, etc. The 5x8 and 6½x8½ sizes are provided, at a slight extra cost, with *rising and falling fronts*, a *swinging back*, *hinged and folding beds* (almost indispensable adjuncts for some views), and are adjustable for *stereoscopic work*, having *double lenses*, on interchangeable fronts with partitions. All the sizes are reversible, thus allowing the pictures to be taken either vertically or horizontally, as may be desired.

No.		PRICE.
2520.	OUTFIT No. 1. For making 4x5-inch Pictures,	\$10 00
	This outfit comprises a "New Model Camera," with rubber bellows and rigid platform, one Double Dry Plate Holder, Achromatic View Lens, with three removable Diaphragms, Folding Tripod, and Carrying Case.	
2521.	OUTFIT No. 2. For making 5x8-inch Pictures,	12 00
	This outfit comprises the same articles as those with No. 2520, but of larger size.	
2522.	OUTFIT No. 2, with the addition of an extra front, partition, and pair of Lenses for Stereoscopic work,	19 00
2523.	OUTFIT No. 3. For making 6½x8½-inch Pictures,	14 00
	This outfit comprises the same articles as those furnished with No. 2520, but of larger size.	
2524.	OUTFIT No. 3, with the addition of an extra front, partition, and pair of Lenses for Stereoscopic work,	21 00

IMPROVED "NEW MODEL" CAMERAS.

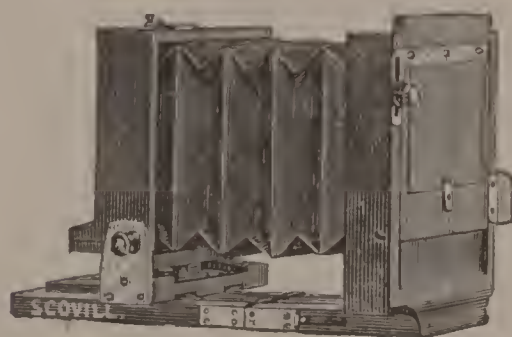


Nos. 2525-2528.

2525.	OUTFIT No. 4. For making 5x8-inch Pictures,	18 00
	This outfit consists of an "Improved New Model Camera," which has rack and pinion adjustment of focus, rising and falling	

No.	PRICE
Front, adjusting for sky or foreground; Folding Bed, for compactness in packing, and Single Swing Back. All the other apparatus is the same as that furnished with No. 2521.	
2526. OUTFIT No. 4, with the addition of an extra front, partition, and pair of Lenses for Stereoscopic work,	\$25 00
2527. OUTFIT No. 5. For making 6½x8½-inch Pictures,	22 00
This outfit consists of an "Improved New Model Camera," with the same apparatus as that furnished with No. 2525, but of larger size.	
2528. OUTFIT No. 5, with the addition of an extra front, partition, and pair of Lenses for Stereoscopic work,	29 00
The Developing and Printing Outfits Nos. 3100-02 and 3107-09 are specially designed for use with these Cameras.	

THE PETITE CAMERA.

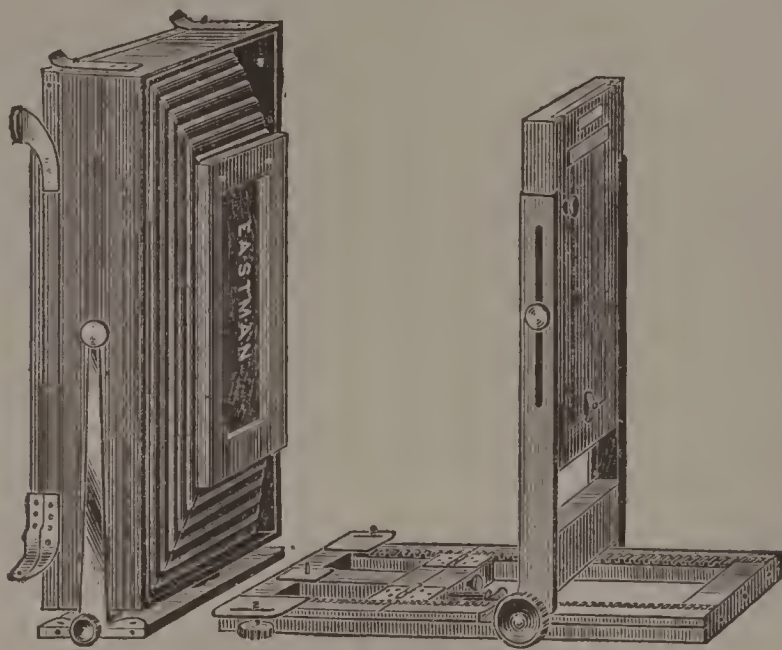


No. 2532.

This little gem of a camera was made to suit the refined taste of one of Vassar's fair students. The design on the part of the manufacturers was to reduce the impedimenta for an outing to the minimum, providing a 3¼x4¼ camera (to make negatives of suitable size for lantern slides), with single swing, folding bed, vertical shifting front, and other desirable improvements. So well has the design been carried out that many ladies will follow the example of Vassar's pupils, and learn the fascination of picture-taking with one of these finely polished mahogany cameras. Gentlemen in search of a pocket camera need not seek further. The Petite Camera and an enlarging camera will by many be considered a satisfactory and complete equipment for such photographing as they desire to do.

2530. PETITE CAMERA, 3¼x4¼, with one Double Dry Plate Holder, . . .	\$12 00
2531. PETITE CAMERA, same as 2532, with adjustable Feather Weight Tripod, and Canvas Case with Shoulder Strap,	17 00

EASTMAN'S INTERCHANGEABLE VIEW CAMERA (REVERSIBLE BACK).



No. 2535-41.

This Camera fully supplies the demand for a box combining **LIGHTNESS, RIGIDITY, STRENGTH, COMPACTNESS, and FINE FINISH**, with several novel features found in no other make, prominent among which are the **DOUBLE RISING FRONT and DETACHABLE BODY and BED**. It is provided with two means for raising the lens, a movable front board of the usual construction, and an adjustable frame, by means of which the whole front of the camera carrying the bellows can be raised and lowered at will, thus giving more than double the usual range of adjustment. The thumb-screws in the bed which control the vertical swing are so arranged that when unscrewed the body can be lifted from the bed and the bellows detached from the front by turning a button; this feature enables the substitution of one body for another of a different size on the same bed. For instance, a customer who purchases a camera of any given size, can at a future time obtain a back for any other size which will fit on the same bed, at an additional cost of only one-half the price of a new camera. The means employed for detaching the parts do not in any way add to the complexity of the camera.

The plate-holders are of two forms. The English book has the septum hinged inside, a matter of great convenience in filing. A pair of spring catches of unique design fasten the holder when closed. The Eureka Holder is light, strong, and cheap.

The Eastman Camera has double rack-and-pinion for focusing, the rack-and-pinion being cut, not cast, and the movement is smooth and easy.

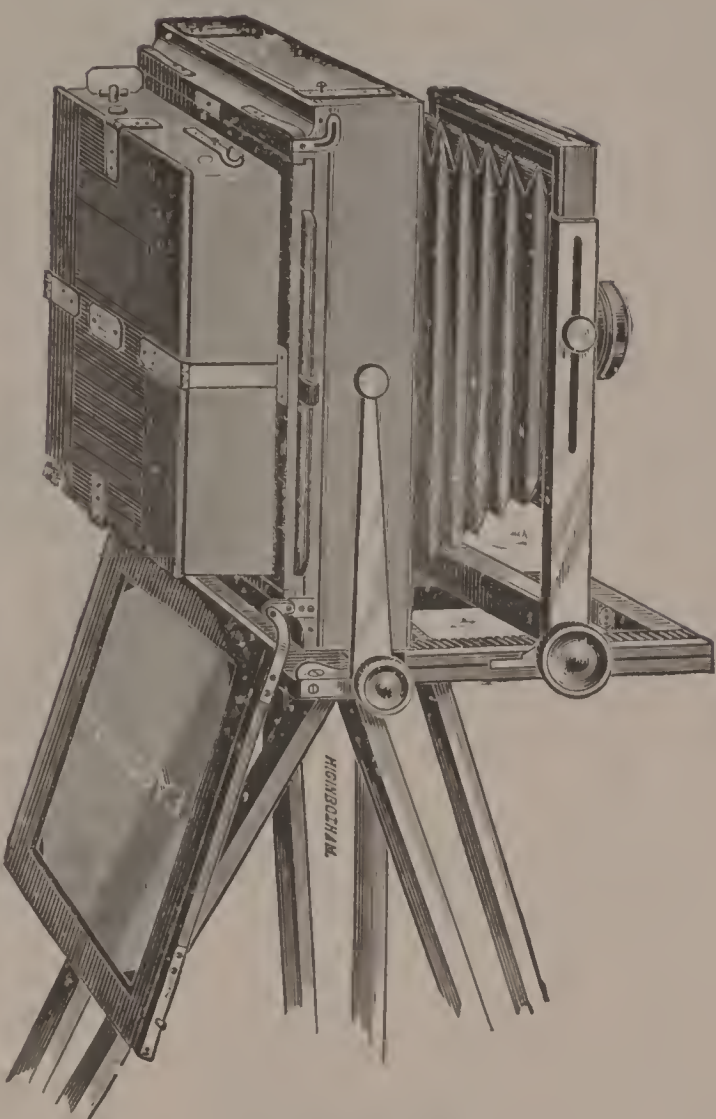
The length of bed is adapted in each size to the shortest focus lens that will cover the plate, and an extension piece is provided with each camera for use with extra long focus lenses, or for copying.

The reversible back carries the hinged ground glass frame, having hinges of such construction as will throw the frame out of the way of the roll-holder without detaching. The ground glass frame may be entirely detached if desired, being provided with spring catch hinges for that purpose.

The success attending the introduction of this Camera shows in an eminent degree the appreciation by the public of the efforts to supply, at a moderate price, a Camera of a finer grade of workmanship than has hitherto been obtainable in this country. The great care taken in all the details of the manufacture, from the scientific seasoning of the wood to its final polishing and the lacquering of the brass work, leaves little to be desired even by the critical, while the design combines in the highest degree the essential qualities of the perfect Camera,

STRENGTH, LIGHTNESS, COMPACT-
NESS, RIGIDITY.

In recommending the purchase of a fine Camera, we would suggest to the intending purchaser that the extra expenditure of a few dollars is soon forgotten in the satisfaction of possessing a really good piece of apparatus, whilst a poor one is a continual source of dissatisfaction and regret.

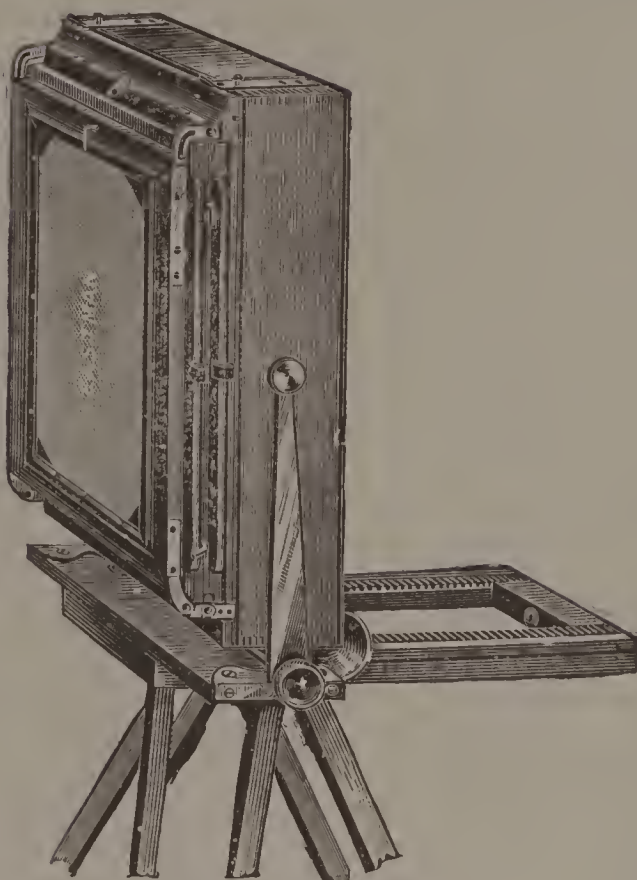


Nos. 2532-2541.
EASTMAN CAMERA, WITH EUREKA AD-
JUSTER AND ROLL-HOLDER.

THE EUREKA GROUND GLASS ADJUSTER,

recently designed for these Cameras, combines all the advantages of the spring actuated ground glass and the old style hinged back, inasmuch as it can be used either way. The great advantages of having it without springs to retard introduction of holder, and in having it close flat and snug, will be appreciated by those who have experienced the drawbacks of other styles.

3½ x 4¼ Camera will take	4¼ x 5½,	.	.	.	.	.	.	extra backs.
4¼ x 5½ Camera will take	4¼ x 5½,	5 x 8,	.	.	.	.	.	"
5 x 7 Camera will take	4¼ x 5½,	5 x 8,	6½ x 8½,	.	.	.	.	"
5 x 8 Camera will take	5 x 7,	6½ x 8½,	.	.	.	.	.	"
6½ x 8½ Camera will take	5 x 7,	5 x 8,	8 x 10,	.	.	.	.	"
8 x 10 Camera will take	6½ x 8½,	10 x 12,	11 x 14,	.	.	.	.	"
10 x 12 Camera will take	6½ x 8½,	8 x 10,	11 x 14,	14 x 17,	.	.	.	"
11 x 14 Camera will take	8 x 10,	10 x 12,	14 x 17,	17 x 20,	.	.	.	"
14 x 17 Camera will take	11 x 14,	17 x 20,	18 x 22,	.	.	.	.	"
17 x 20 Camera will take	14 x 17,	18 x 22,	20 x 24,	.	.	.	.	"
18 x 22 Camera will take	14 x 17,	17 x 20,	20 x 24,	.	.	.	.	"
20 x 24 Camera will take	17 x 20,	18 x 22,	.	.	.	.	.	"



Nos. 2532-2541.

EASTMAN CAMERA, WITH EUREKA ADJUSTER AND PLATE-HOLDER.

PRICE LIST OF EASTMAN'S INTERCHANGEABLE VIEW CAMERAS.

No.	Size of Plate.	Complete Camera, including Extension Bed, one extra Lens Board, and one Double Holder.	Extra Back and one Double Holder.	Double Holders, Book Form.	Double Holders, Eureka.	Eastman-Walker Roll- Holders, Model of 1887.
2532.	3½ x 4½	\$25 00	\$12 50	Not made.	\$1 40	\$9 00
2533.	4½ x 5½	26 00	13 00	"	1 40	10 00
2534.	4½ x 6½	28 00	14 00	"	1 40	10 00
2535.	5 x 7	32 00	16 00	\$2 50	1 50	12 50
2536.	5 x 8	34 00	17 00	2 50	1 60	12 50
2537.	6½ x 8½	36 00	18 00	4 20	2 00	16 00
2538.	8 x 10	40 00	20 00	6 00	2 40	20 00
2539.	10 x 12	50 00	25 00	8 00	3 50	24 00
2540.	11 x 14	60 00	30 00	10 00	4 00	30 00
2541.	14 x 17	75 00	37 50	12 50	6 00	40 00
2541*.	17 x 20	85 00	42 50	15 00	8 00	50 00
2541**.	18 x 22	90 00	45 00	18 00	10 00	60 00
2541***.	20 x 24	100 00	50 00	21 00	15 00	75 00

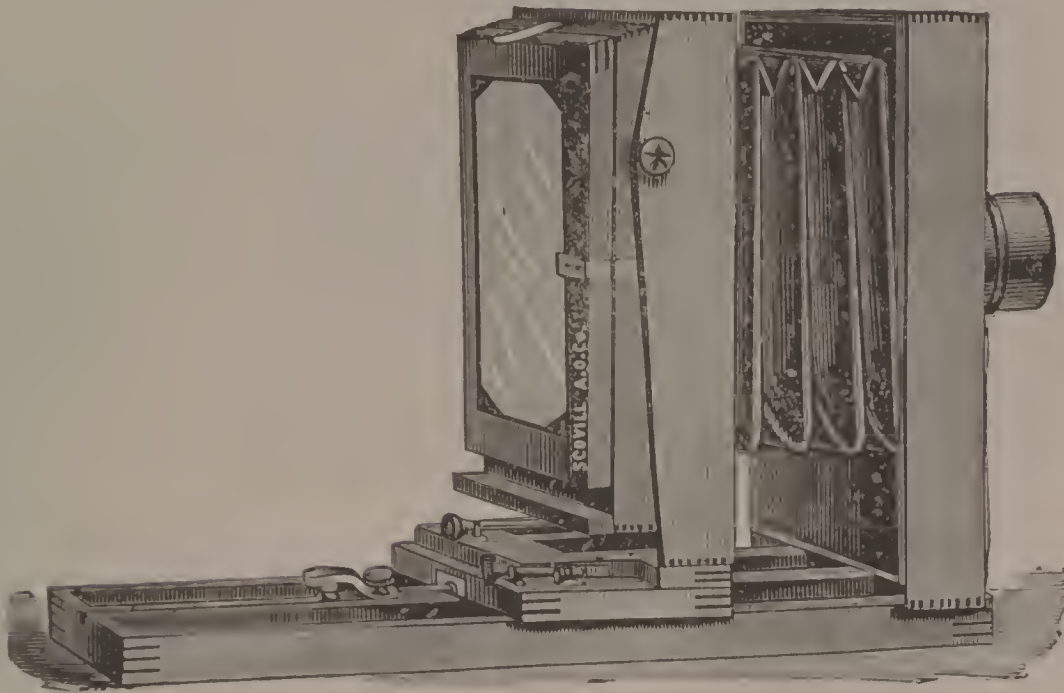
Complete Cameras have canvas carrying-cases. Extra backs have wood carrying-cases.

Cameras with hinged ground-glass adjusters, or with Eureka adjusters, same price.

Book-Holders (English style) can be furnished only for the hinged adjusters.

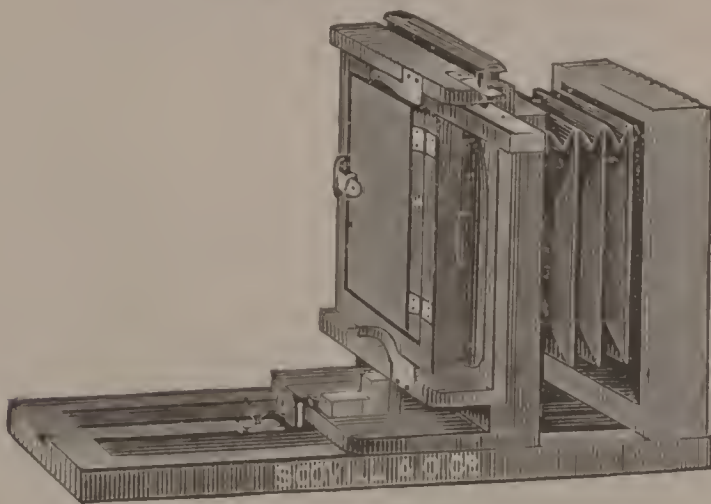
Eureka Holders can be furnished for either style adjusters. No charge for fitting roll-holders purchased with Cameras.

PORTRAIT CAMERAS.



Nos. 2547-54.

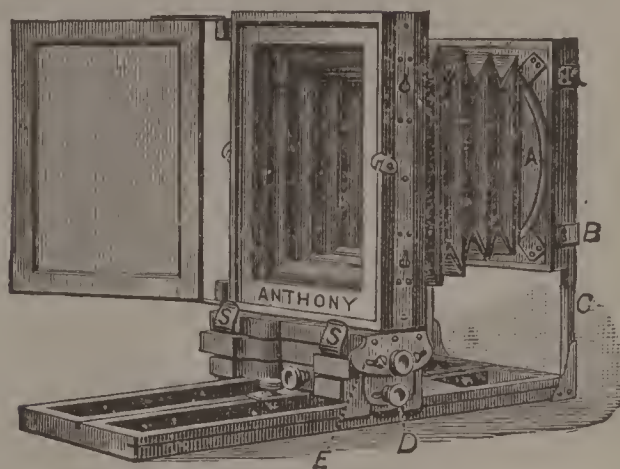
No.		For Plates.	Without Swing Back.	Single Swing Back.	Double Swing Back
2547.	PORTRAIT CAMERA,	4½ x 5½	\$17 00	\$22 00	\$27 00
2548.	" "	6½ x 8½	33 00	38 00	43 00
2549.	" "	8 x 10	38 00	43 00	47 50
2550.	" "	10 x 12	47 50	55 00	60 00
2551.	" "	11 x 14	55 00	64 00	71 00
2552.	" "	14 x 17	68 00	78 00	88 00
2553.	" "	17 x 20	85 00	95 00	105 00
2554.	" "	18 x 22	95 00	100 00	110 00



Nos. 2542-46.

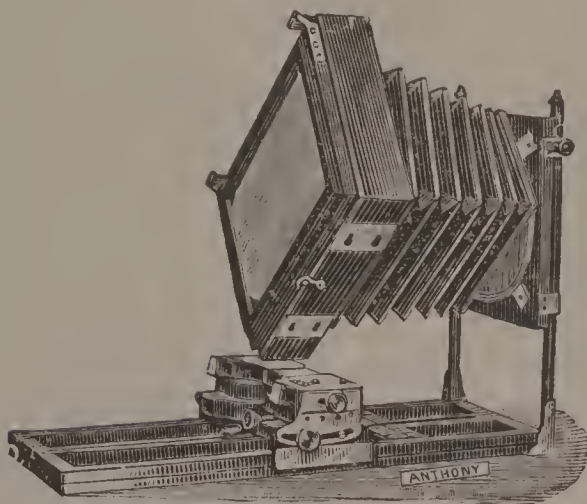
No.		PRICE.
2542.	THE GEM CAMERA. Complete with four 1-9 Darlot Tubes, . . .	\$28 00
This Camera will make four, eight, or sixteen pictures on a ¼ plate; or two cards on a ½ plate.		
2542*.	THE GEM CAMERA, without the four tubes,	\$18 00
2543.	THE GEM CAMERA complete, ½ size, with six Darlot Tubes, . . .	34 00
This Camera will make six pictures on a ½ plate.		
2543*.	THE GEM CAMERA, ½ size, without the six tubes,	17 00

ANTHONY'S NOVEL VIEW-CAMERAS.



Nos. 2555-2559.

FIG. NO. 1. NOVEL VIEW-CAMERA IN POSITION FOR VERTICAL PICTURES.



Nos. 2555-2559.

FIG. NO. 2. NOVEL VIEW-CAMERA, SHOWING METHOD OF REVERSING.

These Cameras are made in the best possible manner, and of first quality Mahogany, in good, hard varnish finish. They have Single and Double Swing Backs, Cone Bellows, and Folding Beds; are very light, compact, and strong. Their peculiar construction admits of making the pictures either vertically or horizontally with equal ease, the change of position being effected very quickly.

The rear part of the Camera is separated from the bed by merely pushing it from left to right, the keyhole slots releasing the heads of the screws.

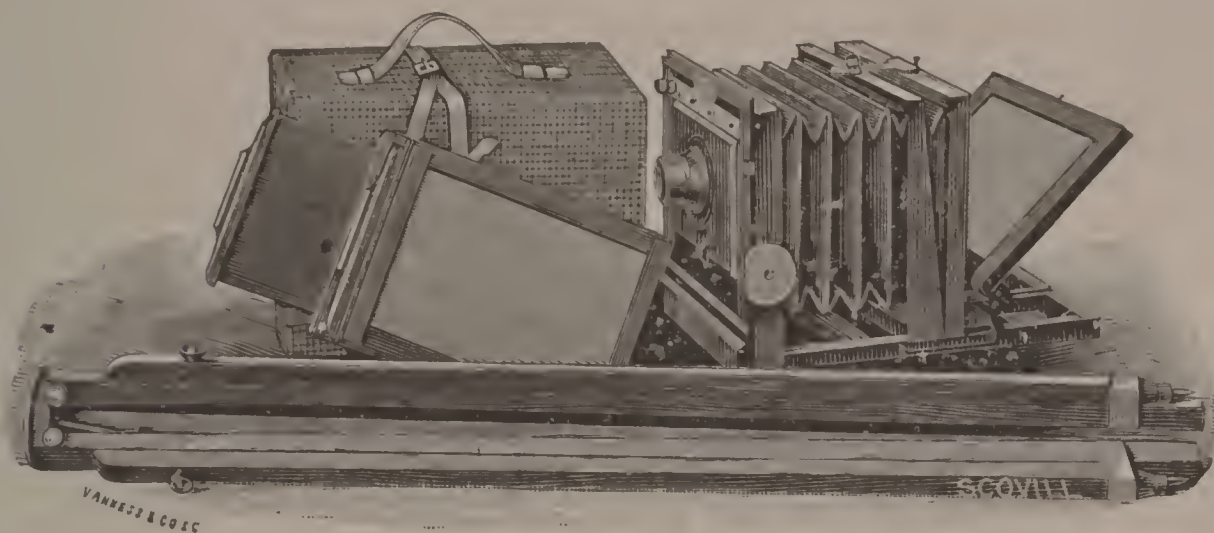
The front end of the bellows is arranged so as to revolve in a light framework, which runs on the two hollow upright brass rods; when the rear of the Camera is separated from the bed, the entire bellows revolves at the same time with the rear. When this is turned on its side and replaced on the screw the Camera is reversed. The whole operation of reversing a 5x8 camera requires but two seconds by the watch.

They are made with as long a bellows as possible, the 5x8 being about four inches longer than those of the ordinary kind. The ground glass is hinged to the Camera.

No.	PRICE.
2555. ANTHONY'S NOVEL VIEW-CAMERA, 4x5,	\$17 50
With Single Swing, one Double Plate Holder, and Carrying Case.	
2556. ANTHONY'S NOVEL VIEW-CAMERA, 4½x6½,	20 00
With Single Swing, one Double Plate Holder, and Carrying Case.	
2557. ANTHONY'S NOVEL VIEW-CAMERA, 5x8,	20 00
With Single Swing, one Double Plate Holder, and Carrying Case.	
2558. ANTHONY'S NOVEL VIEW-CAMERA, 6½x8½,	25 00
With Single Swing, one Double Plate Holder, and Carrying Case.	
2559. ANTHONY'S NOVEL VIEW-CAMERA, 8x10,	30 00
With Single Swing, one Double Plate Holder, and Carrying Case.	

(The three latter sizes have Stereoscopic partitions and extra front.)

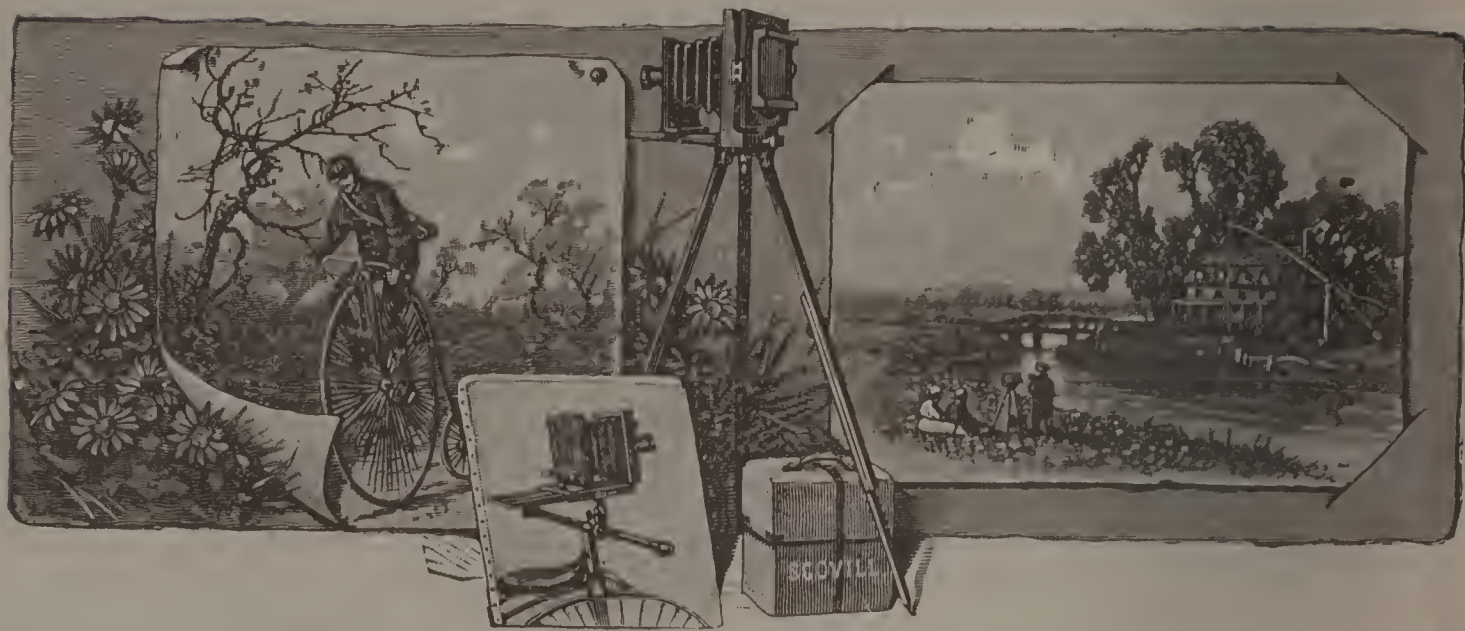
AMERICAN OPTICAL COMPANY'S CAMERAS.



Nos. 2565-2568.

2555*. AMERICAN OPTICAL COMPANY'S OUTFIT No. 202,	22 00
This outfit comprises a Folding Mahogany Polished Camera for taking pictures 4x5 inches, with <i>Folding Bellows Body</i> , Single Swing, Hinged Bed, Brass Guides, and a Shifting Front for adjusting the sky and foreground, with one Daisy Double Dry Plate Holder, one Canvas Carrying Case, and one Extension Tripod, No. 1.	
2556*. AMERICAN OPTICAL COMPANY'S OUTFIT No. 202 A,	24 00
This outfit is the same as No. 202, but adapted for taking pictures 4½x5½ inches.	
2567*. AMERICAN OPTICAL COMPANY'S OUTFIT, No. 202 B,	26 00
This outfit is the same as No. 202, but adapted for taking pictures 4½x6½ inches.	
2568*. AMERICAN OPTICAL COMPANY'S OUTFIT No. 203,	30 00
This outfit comprises a Folding Mahogany Camera, French polished, for taking 5x8-inch pictures, and also for Stereoscopic views, Single Swing, Brass Guides, and Shifting Front, together with one Daisy Dry Plate Holder, one Extension Tripod No. 2, and Canvas Carrying Case.	

PHOTOGRAPHIC OUTFITS FOR BICYCLISTS.



No. 2560.

So popular has amateur photography become among wheelmen that the two amusements are now almost identical. The "Wheel" allows unbounded opportunities to the amateur photographer to gather choice landscape views which he could not get otherwise.

No.		PRICE.
2560.	"NE PLUS ULTRA" BICYCLISTS' PHOTO-OUTFIT,	\$10 00

This Outfit comprises an imitation Mahogany Camera ($3\frac{1}{2} \times 4\frac{1}{2}$) with Vertical Shifting Front, Folding Bed, and Hinged Ground Glass Focusing Screen; a Universal Joint Bicycle Attachment; a No. 1 Waterbury Lens *with Stops*, one Double Plate Holder, and a Canvas Case, with Shoulder Straps.

The advantages of this outfit are its Lightness and Compactness, and the ease with which it can be brought into use—a new device on bed of the Camera permitting it to be made rigid, or to fold instantaneously. There are no loose pieces. The outfit complete weighs 2 pounds 3 ounces.

2561.	THE "MIGNON" BICYCLISTS' PHOTO-OUTFIT,	65 00
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This Outfit comprises a Finely Polished Mahogany Camera, with Swing Back, Vertical Shifting Front, Hinged Ground Glass Focusing Screen, Folding Bed, Rack and Pinion Front Focusing Adjustment, *and no loose pieces*; a Universal Joint Bicycle Attachment, Beck's Autograph Lens No. 2, with Instantograph Shutter, one Double Plate Holder, and Canvas Saddle Bag lined with Flannel.

2562.	THE "MIGNON" BICYCLISTS' CAMERA, with Plate Holder and Case,	25 00
2562*.	THE BIJOU CAMERA,	12 00

The Bijou Camera is the neatest and most compact little camera made. When folded it measures $5 \times 5 \times 3\frac{1}{2}$ inches, and weighs only $14\frac{1}{2}$ ounces. It has a Sliding Front, Hinged Ground Glass, and Folding Bed; is made of Mahogany, with Swing Back, and altogether is an elegant little instrument.

DETECTIVE CAMERAS.

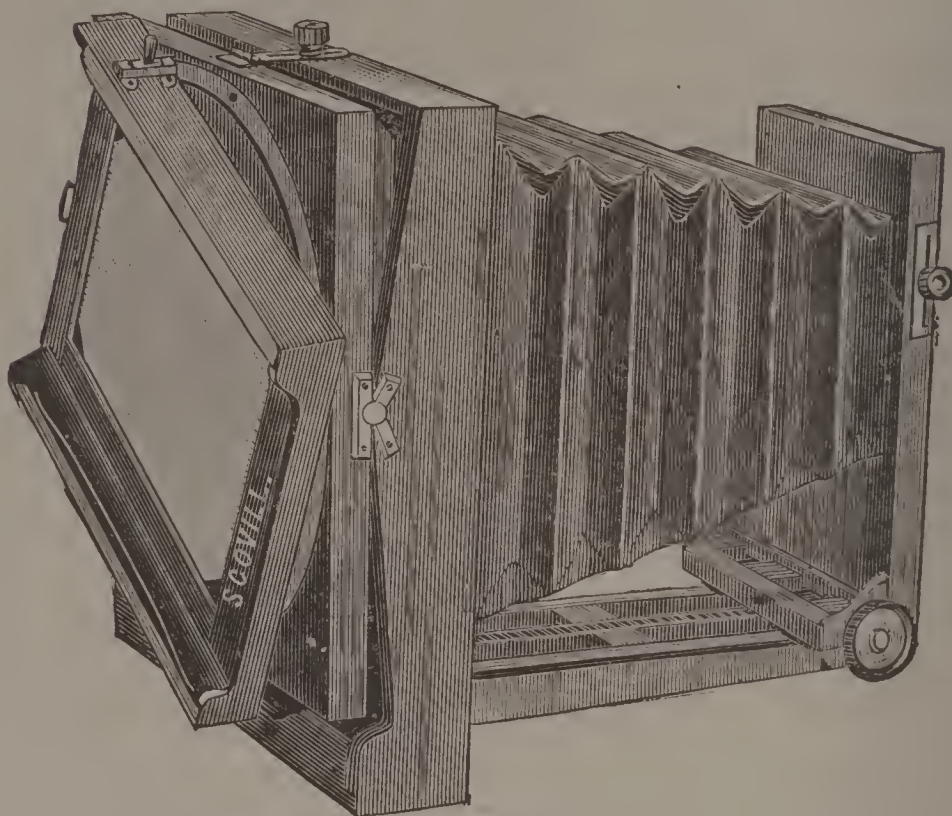


Detective Cameras (so-called) are now in universal use, and few travelers go abroad without including one of these handy little boxes in their outfit. Hundreds of mementos of travel are thus secured that otherwise would be lost forever. A *Beck* lens insures a perfect picture, which is made by merely pressing on a concealed spring.

No.	Price.
2563. SCOVILL'S DETECTIVE CAMERA, 3½x4½,	\$ 0 00
Complete in small Morocco Covered Case, with <i>Beck's</i> Autograph Lens No. 2, Instantaneous Shutter, and three Double Plate Holders.	
2563*. SCOVILL'S DETECTIVE CAMERA, 4x5,	65 00
Complete with same fittings as 2569.	
2564. SCOVILL'S DETECTIVE CAMERA, 4½x6½,	90 00
Complete with same fittings as No. 2563 and <i>Beck's</i> Autograph Lens No. 3, 5x8.	
2564*. SCOVILL'S DETECTIVE CAMERA, 5x7,	100 00
Complete with same fittings as 2564.	
Any of the above Cameras, fitted with <i>Eastman-Walker</i> Roll-Holders and <i>Scovill's</i> Automatic Tally for an additional charge of fifteen dollars.	
2565. WATERBURY DETECTIVE CAMERA, 4x5,	25 00
Complete with Finder, Quick Lens, Instantaneous Shutter, and two Double Plate-Holders.	
2565*. WATERBURY DETECTIVE CAMERA, 4x5,	35 00
With Roll Holder and same fittings as No. 2565.	
2566. EASTMAN'S DETECTIVE CAMERA, 4x5,	50 00
With Roll-Holder, Rapid Lens, and Alligator Shutter.	
2567. GRAY'S CONCEALED CAMERA, 5½ inch,	15 00
Complete with Instantaneous Lens and Shutter.	
2568. GRAY'S CONCEALED CAMERA, 6½ inch,	25 00
Complete with Instantaneous Lens and Shutter.	

These are true Detective Cameras, being worn beneath the waist-coat, the lens protruding through a buttonhole entirely unobserved; and they can be manipulated without being seen. Six pictures can be made on one plate with 2567, and four with 2568.

FLAMMANG'S PATENT REVOLVING BACK CAMERAS.



Nos. 2575-2582.

"These are the finest View Cameras ever constructed," so says every photographer who has examined any of them, and this exclamation is not merely a tribute to the beauty and grace of their design; for invariably the desire has at the same time been expressed to possess one of these truly novel and substantial Cameras.

PRICE-LIST.

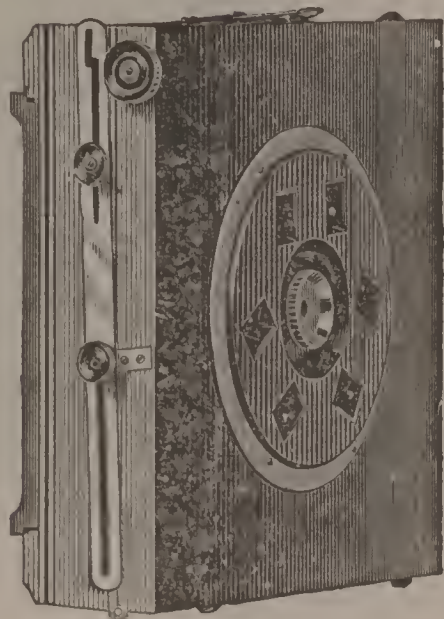
Revolving Back Cameras, each in a Canvas Carrying-Case, with one Daisy Plate Holder

No.							PRICE.	
							Single Swing.	Double Swing.
2574.	Flammang's	Revolving	Back	Camera,	for view	4 x 5 inch,	\$31 00	\$36 00
2575.	"	"	"	"	"	4½ x 5½ "	33 00	38 00
2576.	"	"	"	"	"	5 x 7 "	35 00	40 00
2577.	"	"	"	"	"	5½ x 7 "	35 00	40 00
2578.	"	"	"	"	"	5 x 8 "	35 00	40 00
2579.	"	"	"	"	"	6½ x 8½ "	45 00	50 00
2580.	"	"	"	"	"	8 x 10 "	50 00	55 00
2581.	"	"	"	"	"	10 x 12 "	65 00	70 00
2582.	"	"	"	"	"	11 x 14 "	77 50	82 50

Please state, when ordering, whether front or back focus is desired.

Grace and strength are combined in the Revolving Back Camera, and its highly desirable features are gained without the sacrifice of steadiness or any other essential principle in a good camera. Indeed, its merit is such, that outdoor photography will be advanced and made more attractive by its introduction.

BLAIR'S ENGLISH COMPACT REVERSIBLE BACK CAMERA.



Nos. 2585-2588. Folded.

The illustration gives a partial front view of this Camera folded, showing the sunken tripod-top with Clamping Screw. The centre of the latter is tapped to receive a regulation Tripod Screw, thus enabling the operator to use any other form of tripod than that supplied with the Camera. When folded (as shown in the illustration) the three smaller sizes are but $3\frac{1}{2}$ inches thick, whilst the 8x10 is 4 inches. They are made of the best selected mahogany, French polished, and trimmed with hand-finished brass mountings. Each is contained in a Canvas-covered Carrying Case, arranged to hold the Camera and four Plate Holders. The price includes Carrying Case, one Feather Weight Plate Holder, and Improved Combination Tripod.

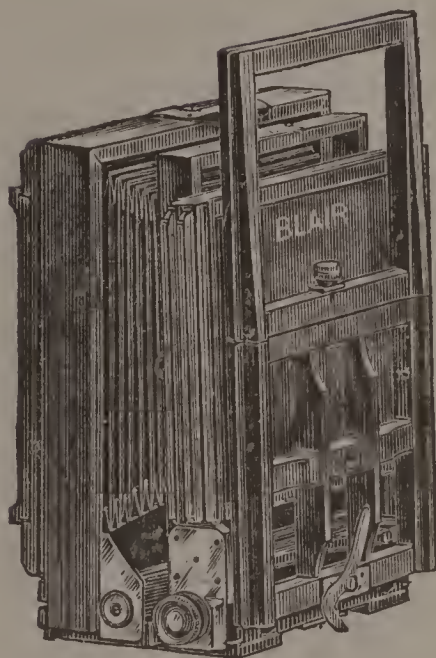
PRICE-LIST.

No.	Size.	SIZE OF LENS BOARD.	CAPACITY FOR LENGTH OF FOCUS.	PRICE. S. S.
2585	5x7	$3\frac{3}{4}$ in. sq.	17 in.	\$45.00
2586	5x8	$4\frac{1}{2}$ "	18 "	50.00
2587	$6\frac{1}{2}$ x $8\frac{1}{2}$	$4\frac{1}{2}$ "	18 "	50.00
2588	8x10	6 "	20 "	55.00

BLAIR'S IMPROVED REVERSIBLE BACK CAMERA.

This Camera, whilst the lightest of any in the American market, is perfectly firm and rigid, being constructed in the most thorough and workmanlike manner of the best materials. The "Feather-Weight" Double Plate Holders, with which it is provided, are perfectly light-tight, yet so thin and small that seven of them can be carried within the folding bed of the Camera when the latter is packed in its Carrying Case, thus giving the operator the use of fourteen plates in a day's outing.

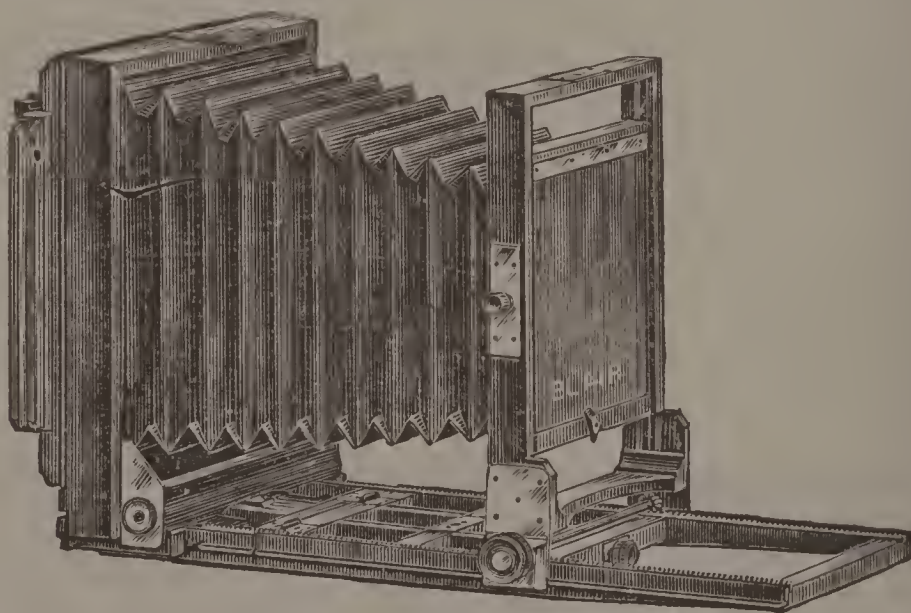
The reversing of the back is accomplished by simply pressing a spring and changing the holder from vertical to horizontal, and as great pains are taken to have very accurate adjustments on all sides, no appreciable gain could be made were it constructed to revolve, whilst increase in bulk would be necessitated.



Nos. 2590-2593. Closed.

Another unique part of its construction is the means of attaching the plate holder and ground glass. The latter is held by the four corners, and kept in position, wherever it may come to a bearing, by a spring; and when the plate holder is to be inserted, the lateral movement of a couple of inches causes the ground glass frame to recede sufficiently for the holder to be slid in freely without a spring to retard its motion or jar the camera; and when in position, and the ground glass frame acted upon by the spring is released, the latter lies firmly behind the plate holder, keeping it in position.

The stationary portion of the bed has two sockets for attaching the tripod, which enables the operator to balance his camera whether using a short or long focus lens. In using the former, the *folding portion of the bed must be turned up*, otherwise it would interfere with the view.

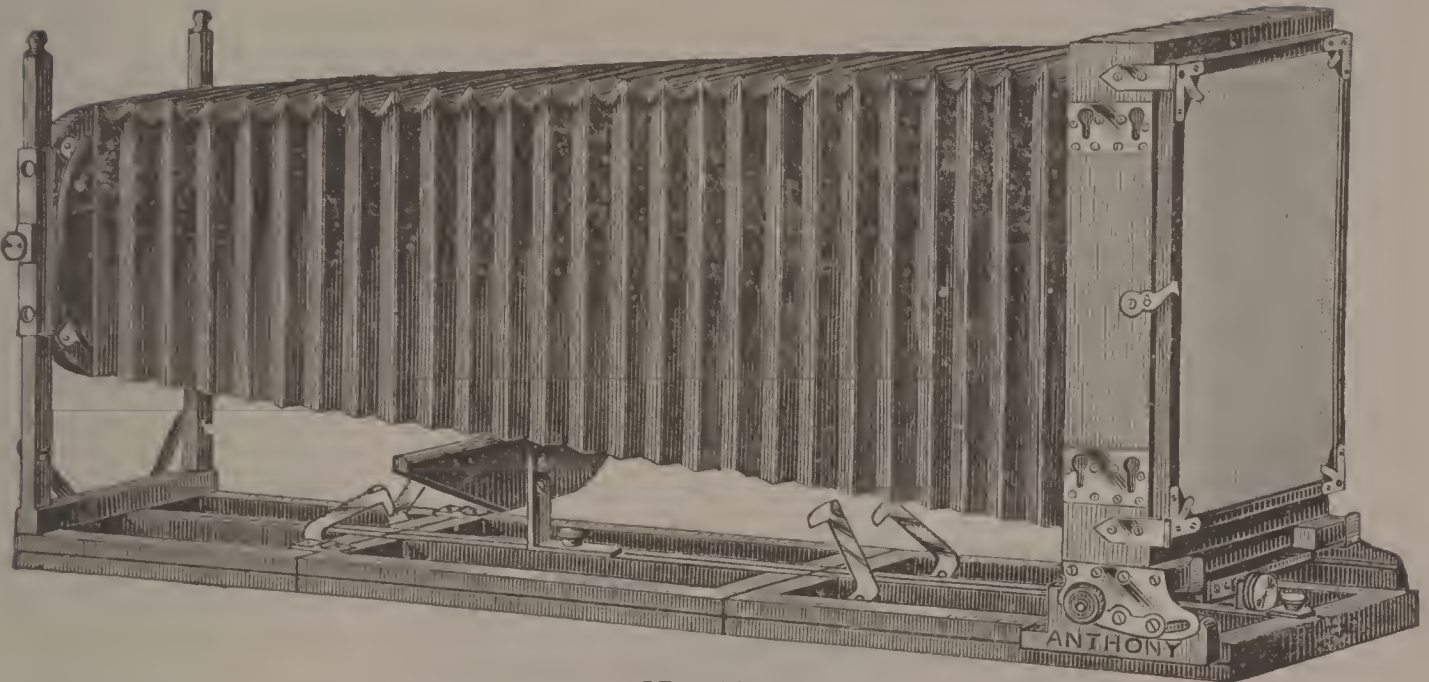


Nos. 2590-2593. Extended.

No.	SIZE OF PLATE.	WEIGHT.	SINGLE SWING.	PRICE.
2590. BLAIR'S REVERSIBLE-BACK CAMERA,	4 $\frac{1}{4}$ X 5 $\frac{1}{2}$	3 $\frac{1}{4}$ lbs.,	"	\$28 00
2591. "	" 5 X 7	4 "	"	31 00
2592. "	" 6 $\frac{1}{2}$ X 8 $\frac{1}{2}$	5 "	"	35 00
2593. "	" 8 X 10	7 $\frac{1}{4}$ "	"	40 00

Each of the above Cameras is provided with one "Feather Weight" Double Plate Holder and Carrying Case.

NOVELETTE COPYING AND VIEW CAMERA.

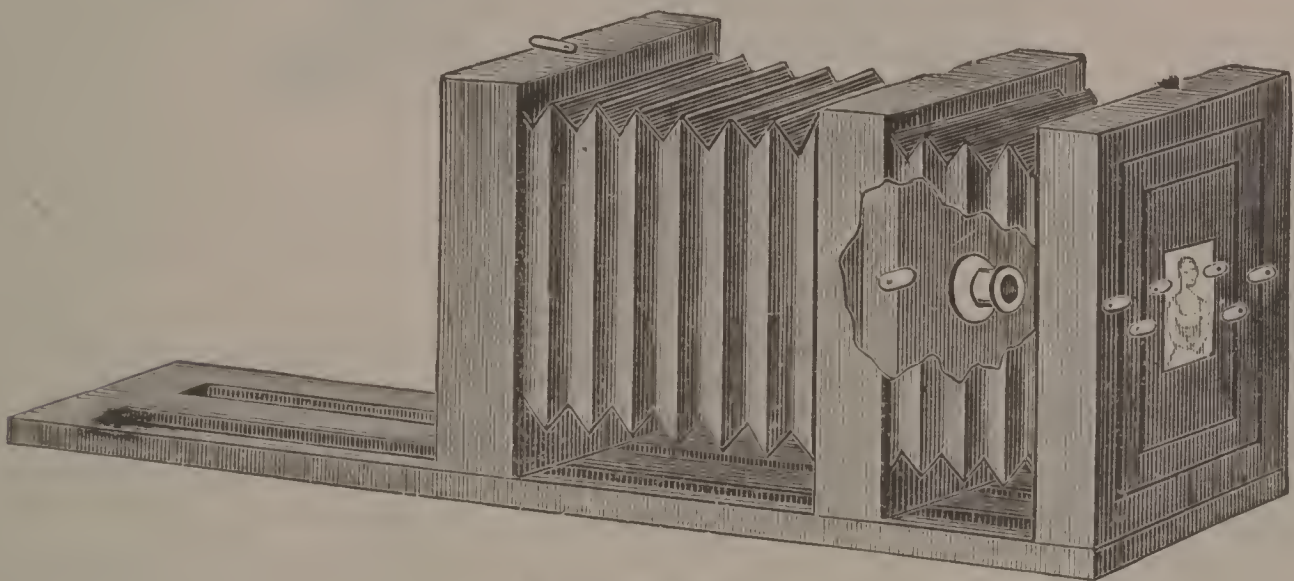


No. 2600.

No. 2600. NOVELETTE COPYING CAMERA, 8x10, with Plate Holder and Case, \$40 00

The bed of this Camera is in three sections. By removing the rear one a regular 8x10 Novelette box is obtained. The extra section is held firmly in position by two dowel pins and patent hook clamps, and can be removed in a moment.

ENLARGING, REDUCING, AND COPYING CAMERAS.



Nos. 2602-2605.

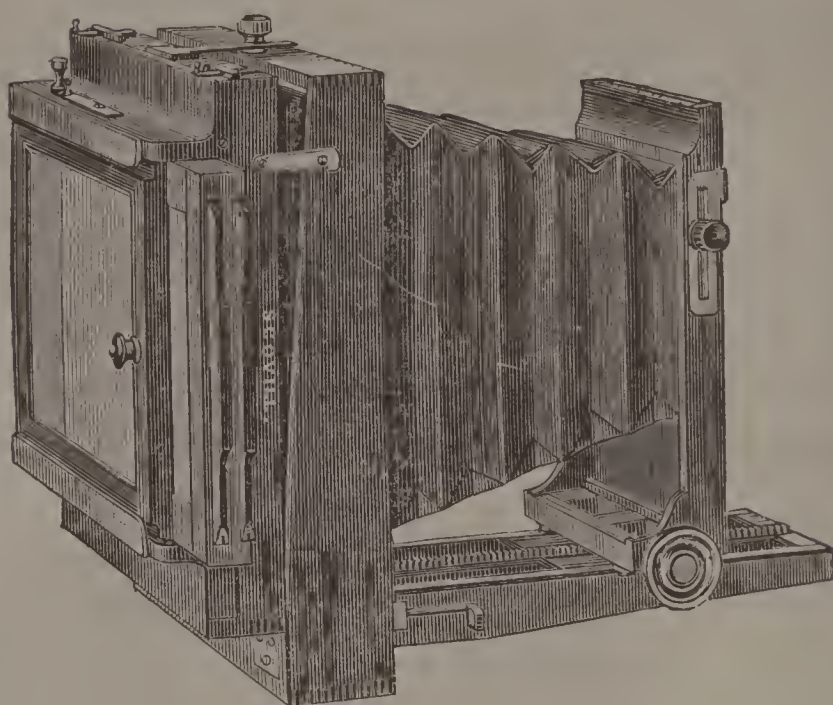
No.							PRICE
2602.	ENLARGING,	REDUCING,	AND	COPYING	CAMERA, complete,	6½x8½,	\$30 00
2603.	"	"	"	"	"	8 x10,	35 00
2604.	"	"	"	"	"	10 x12,	48 00
2605.	"	"	"	"	"	11 x14,	60 00

The construction of these Cameras is clearly shown in the illustration. The box is square and arranged to carry plates either vertically or horizontally, the front and plate holder being reversible. Both are fitted with kits to carry any sized plates, from 3½x4½ to the full size of box. They are invaluable instruments for the production of lantern and other transparencies for copying and making enlargements on Bromide paper from small negatives.

When ordering please specify number and size of kits wanted.

ST. LOUIS

REVERSIBLE BACK CAMERAS.



Nos. 2606-2609.

The St. Louis View Camera has no equal in beauty of design or lightness. The growing use of dry plates and the desire for rapid exposures led to its introduction, and because it adds to the grace and celerity of view-taking it has become vastly popular. A novel arrangement of a detachable carriage at the back combines such a multiplicity of adjustments in itself that a dry-plate holder *may be reversed or be set for either an upright or horizontal picture*—all of these movements, without once changing the plate holder in the carriage.

In addition to the desirable features which the Back Focus Reversible Camera possesses, the latest and finest pattern (front focus) has a rack and pinion movement, side latch for instantaneously making the bed rigid, and the ground glass so arranged that the holder may be slid in front of it. The bed on the larger sizes is made in two sections so that a portion may be taken off when a short focus lens is used. Each Camera is supplied with Canvas Case and one Plate Holder.

No.	For View.					Single Swing-back.	Double Swing-back.
2606.	ST. LOUIS VIEW CAMERA,	4½x5½,	Reversible,	.	.	\$26 00	\$30 00
2607.	"	"	5x7,	"	.	32 00	35 00
2608.	"	"	6½x8½,	"	.	36 00	40 00
2609.	"	"	8x10,	"	.	40 00	44 00

BECK'S PORTABLE CAMERAS.

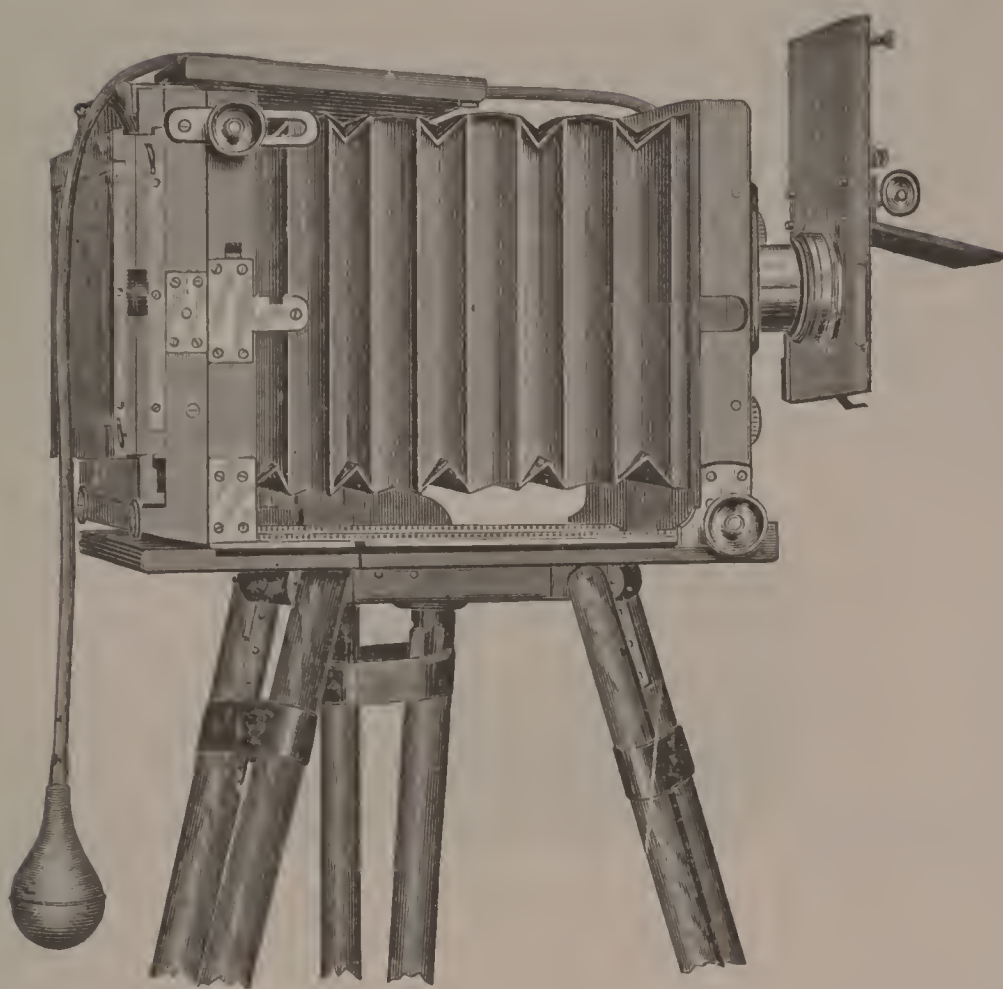


Fig. 1.—No. 2610, WITH PHANTOM SHUTTER No. 2811.
ONE-FOURTH ACTUAL SIZE.

In order to meet the growing demand for Cameras of the most perfect construction, highest finish, and smallest weight and size compatible with strength and utility, the Messrs. Beck have added to their highly successful series of "Autograph" Lenses another of portable Camera Boxes worthy to carry the lenses produced by them. With the unrivaled facilities afforded by their perfect machinery, trained workmen, and splendid stock of old Spanish mahogany, they have produced a series of Cameras which may well defy competition, and which have thus far been sold in advance of their production. Being now, however, prepared to meet any probable demand promptly, we illustrate and describe them for the first time.

The general construction of all the sizes is the same, and is well shown in the illustrations, Figures 1 and 2, which represent the quarter-plate size (No. 2610) drawn to a scale of one-fourth. Figure 1 shows the Camera with lens and plate holder in position, bellows extended, focusing screen folded on top of bellows, and Phantom shutter fitted to the lens, with a portion of the telescopic tripod. Figure 2 shows the same Camera drawn to same scale and folded ready for placing in its carrying-case.

The boxes are all made square, with reversible backs, to allow the ready changing from horizontal to vertical without reversing the entire Camera. They are fitted with a single swing in the smaller sizes, which, by a most ingenious device, accomplishes all the work of a double-swing back; the full-

plate size, however, has a double swing. A double shifting front is also furnished with each size. The focusing is effected by means of a double rack and pinion, working with the utmost steadiness and smoothness, and the Cameras can be furnished with front or back focus, as may be desired, the former being preferable for the smaller sizes, and the latter for the large, if wide-angle lenses are to be employed. The plate holders or double backs are of marvelously perfect workmanship and finish; the carrying-cases are of the best solid leather, with cloth-lined divisions for camera, plate holders, and tripod head, while the tripod itself is of telescopic form, and at once the strongest and lightest ever devised. In short, no care or expense has been spared to make these Cameras what they are—the most perfect ones ever offered for sale in any market.

Of course, such work cannot be afforded at a low price, and the first cost of these Cameras is considerably above that of any others in our list; but viewed in the light of their general beauty, perfection, and utility, they are *cheap*, and will meet with the hearty approval of those who can appreciate *the best*.

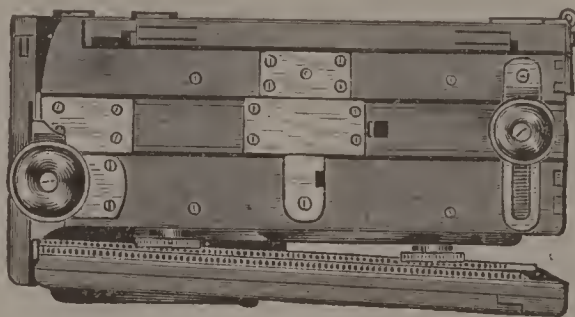
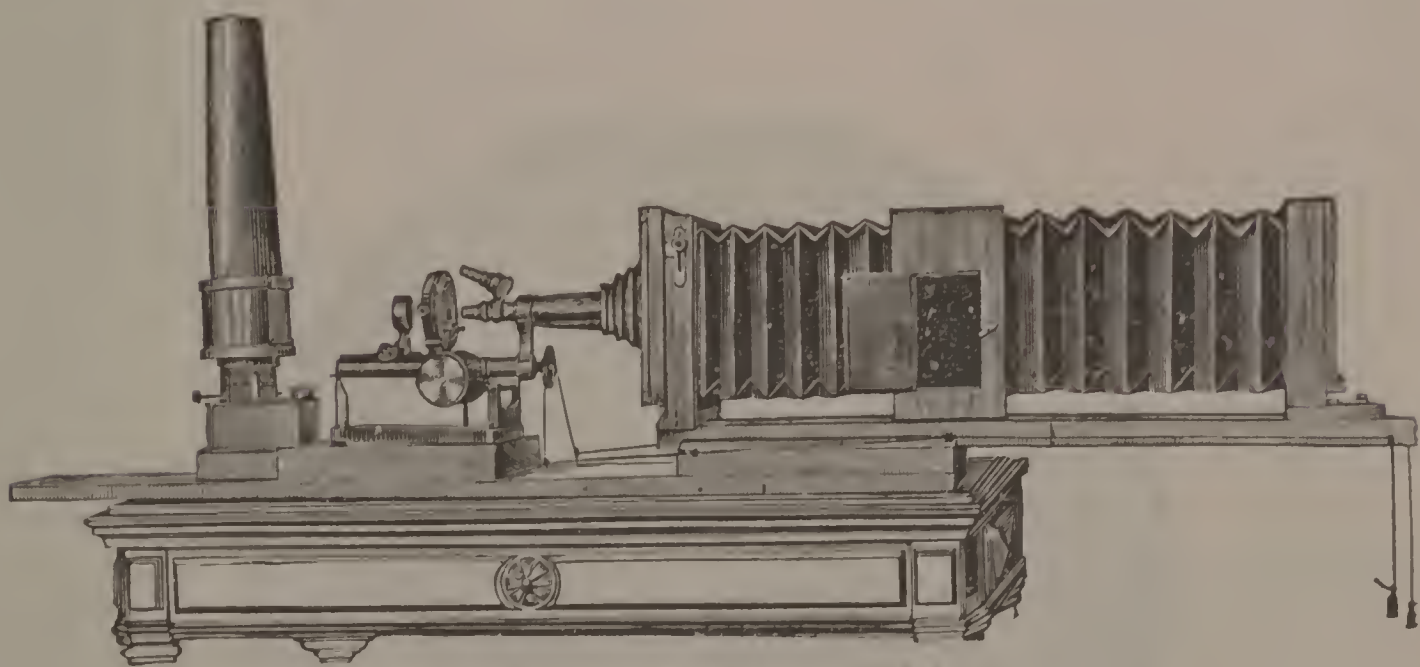


Fig. 2.—No. 2610, Closed.
FOURTH ACTUAL SIZE

No.		PRICE.
2610.	BECK'S PORTABLE CAMERA; OUTFIT A,	\$57 50
	This outfit comprises Camera as described, for plates $4\frac{1}{2} \times 3\frac{1}{4}$, with three double backs, and fine Leather Carrying-Case.	
2611.	BECK'S PORTABLE CAMERA; OUTFIT B,	82 50
	This outfit comprises Camera as above, with six double backs, Tripod, and fine Leather Carrying-Case.	
2612.	BECK'S PORTABLE CAMERA; OUTFIT C,	110 00
	This outfit is the same as 2611, with the addition of Beck's "Autograph" Lens, No. 2760.	
2615.	BECK'S PORTABLE CAMERA; OUTFIT G,	65 00
	This outfit comprises Camera, as described, for plates $5\frac{1}{2} \times 4\frac{1}{4}$, with three double backs, and fine Leather Carrying-Case.	
2616.	BECK'S PORTABLE CAMERA; OUTFIT H,	95 00
	This outfit comprises Camera as above, with six double backs, Tripod, and solid Leather Carrying-Case.	
2617.	BECK'S PORTABLE CAMERA; OUTFIT I,	125 00
	This outfit is the same as 2616, with the addition of Beck's "Autograph" Lens, No. 2761.	
2621.	BECK'S PORTABLE CAMERA; OUTFIT N,	80 00
	This outfit comprises Camera Box, as described, for plates 8×5 , with three double backs, and solid Leather Carrying-Case.	
2622.	BECK'S PORTABLE CAMERA; OUTFIT O,	115 00
	This outfit comprises Camera, as with 2621, with six double backs, Tripod, and solid Leather Carrying-Case.	

No.	PRICE.
2623. BECK'S PORTABLE CAMERA; OUTFIT P,	\$150 00
This outfit is the same as 2622, with the addition of Beck's "Autograph" Lens, No. 2762.	
2625. BECK'S PORTABLE CAMERA; OUTFIT R,	90 00
This outfit comprises Camera Box, as described, for plates $8\frac{1}{2} \times 6\frac{1}{2}$, with three double backs and solid Leather Carrying-Case.	
2626. BECK'S PORTABLE CAMERA; OUTFIT S,	125 00
This outfit comprises Camera, as with 2625, with six double backs, Tripod, and solid Leather Carrying-Case.	
2627. BECK'S PORTABLE CAMERA; OUTFIT T,	175 00
This outfit is the same as 2626, with the addition of Beck's "Autograph" Lens, No. 2763.	
The 8×5 and $8\frac{1}{2} \times 6\frac{1}{2}$ Cameras are furnished with <i>extra long extensions</i> —23 inches—at an additional cost of fifteen dollars each.	

WALMSLEY'S PHOTO-MICROGRAPHIC CAMERAS.



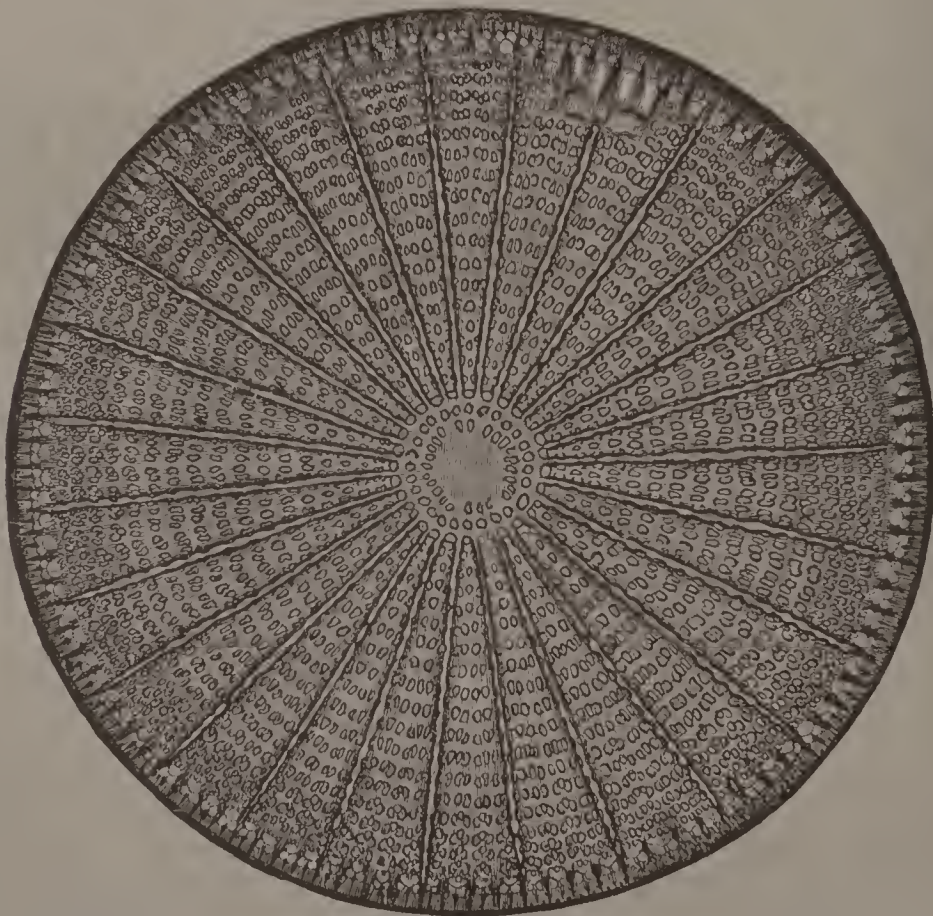
No. 2641. Complete, as in 2643-44.

No.	PRICE.
2640. WALMSLEY'S IMPROVED PHOTO-MICROGRAPHIC AND COPYING CAMERA, with Plate-Holder and Extension Bed,	\$18 00
2641. WALMSLEY'S IMPROVED PHOTO-MICROGRAPHIC AND ENLARGING AND REDUCING CAMERA, with Double Shifting Front, Lens Carrier, etc., etc.,	30 00

- | No. | | PRICE. |
|-------|---|---------|
| 2642. | WALMSLEY'S PHOTO-MICROGRAPHIC OUTFIT B, | \$25 00 |
| | This outfit comprises Camera and Plate Holder as in 2640, one Excelsior Lantern No. 2824, one dozen Plates $4\frac{1}{4} \times 5\frac{1}{2}$, and one dozen ditto $3\frac{1}{4} \times 4\frac{1}{4}$, for making negatives, one dozen special Transparency Plates for Lantern Slides, and one Walmsley's Focusing Glass, No. 2807. | |
| 2643. | WALMSLEY'S PHOTO-MICROGRAPHIC OUTFIT C, | 42 50 |
| | This outfit comprises a Camera and one Plate Holder with Kits for plates $3\frac{1}{4} \times 4\frac{1}{4}$, or $4\frac{1}{4} \times 5\frac{1}{2}$, as in 2640, Platform to hold the Camera (made to order), and a Microscope Lamp with Duplex Burner, mounted so as to be maintained at a proper height above the platform to suit any Microscope; Focusing Glass, No. 2807, two dozen Dry Plates for negatives, Developing Outfit No. 3103, and Printing Outfit No. 3110, for making negatives and finished prints from same. | |
| 2644. | WALMSLEY'S PHOTO-MICROGRAPHIC OUTFIT D, | 55 00 |
| | This outfit is precisely the same as 2643, with the substitution of Copying Camera 2641 for 2640, and the addition of one dozen special Transparency Plates for Lantern Slides, with Mats, Covering Glass, and Needle Paper for binding their edges. | |
| 2645. | PLATFORM to hold Camera and Microscope (made to order), | 4 50 |
| 2646. | PLATE HOLDER FOR PHOTO-MICROGRAPHIC CAMERA, | 1 85 |
| | <i>These Holders are fitted with Kits for carrying plates $3\frac{1}{4} \times 4\frac{1}{4}$, or $4\frac{1}{4} \times 5\frac{1}{2}$, vertically or horizontally as may be desired.</i> | |

In ordering this Platform please state what Microscope is to be used with it, and the exact distance from the table to the centre of the eye-piece when the body is inclined to a horizontal position.

ARACHNOIDISCUS EHRENBORGII.



Phototype from a Photo-Micrograph, by W. H. WALMSLEY.
 $\times 215^\circ$

MERCER'S PHOTO-MICROGRAPHIC CAMERA.



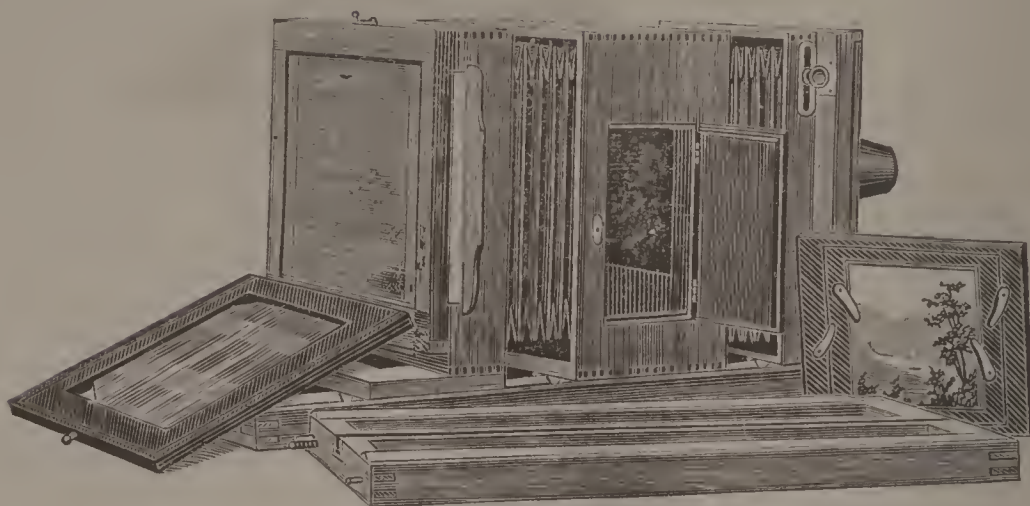
No. 2649.

The above illustration represents the Mercer Photo-Micrographic Camera attached to a Microscope Stand ready for use, in so clear a manner as to require but little further explanation. The instrument is light and portable, for use at the work-table, with the Microscope in any position.

It consists of small box, to which is attached a brass cone, having a draw tube for insertion into the body of the Microscope. The weight, which is inconsiderable, is carried upon the arm of the instrument, and is not allowed to rest upon the sliding parts, with the chance of deranging the focus during manipulation. The Camera is for plates $2\frac{3}{4} \times 3\frac{1}{4}$ inches, which should be of thin glass. The image upon these plates may be enlarged to any desired extent. This apparatus is quickly put in use, is inexpensive in working, and gives satisfactory results.

No.	PRICE.
2649. MERCER'S PHOTO-MICROGRAPHIC CAMERA, with one Plate Holder, \$7 50	

WALMSLEY'S IMPROVED PHOTO-MICRO CAMERA.



No. 2641.

The above illustration represents our Photo-Micrographic Camera in its latest improved or perfected form. From the simple box with long bellows, originally designed, this Camera has gradually grown, through alterations and additions suggested by its constant practical use, to the present elegant, compact, and comprehensive instrument.

The rear portion of the box, carrying the focusing screen and plate holder, slides with the bellows upon two V-shaped ways, smoothly and without hitch or jar, being instantly secured at any point by a cam, operated by a convenient lever. The frame holding the ground glass is hinged at the bottom, and secured at the top, when in position, by a compact spring clip, which also holds the plate holder when the latter is substituted for the focusing screen. To the centre of the ground glass a large circle of thin glass is cemented with Canada balsam, the effect of which is to present a far more delicate surface for focusing upon than can possibly be made by the most careful and delicate grinding. The framework upon which the screen and bellows slide is made with an extension, which can be attached if it be necessary to use a considerable magnification requiring a long bellows, or removed when low powers and short bellows are used. It also permits the employment of an eye-piece, if the operator prefers that method of work, as many do, and for which a short Camera is desirable.

The plate holder is single, the plate being inserted at the back either horizontally or vertically, and is provided with kits whereby negatives $3\frac{1}{4} \times 4\frac{1}{4}$, or $4\frac{1}{4} \times 5\frac{1}{2}$, may be made at will.

But the most important improvement in this Camera is the one which converts it into a Copying, Enlarging, or Reducing one, which is effected by introducing any good rectilinear photographic lens into the middle division of the bellows, which is fitted with a stop-cam the same as that used at the rear of the bellows. The front of the box is fitted with a double shifting arrangement, so that upon removing the cone, a negative of either size made by the Camera can be inserted and accurately centered; then, by suitably manipulating the instrument, an enlarged or reduced image may be cast upon the focusing screen, enabling one, with the aid of transparency plates, to make lantern slides far more perfectly than by contact printing. The Camera becomes now, in fact, a miniature reproduction of the large Copying Camera, No. 2605 of this Catalogue.

Walmsley's Photo-Micrographic Camera.

This simple and inexpensive form of Camera, of which a very fair idea can be gained from the illustration, is designed to produce by the aid of Gelatine Dry Plates and ordinary Lamp-light, Photo-Micrographs of a high order of excellence, and of almost all transparent objects requiring microscopical examination. It will answer equally well for photographing opaque bodies, if the latter be illuminated by the light of the sun reflected from a Silvered Mirror.

Any Microscope, Monocular or Binocular, having an axial joint whereby the body can be inclined to a horizontal position, may be employed. The Microscope is placed upon a base-board four feet in length and nine inches in width, upon one end of which is constructed a platform for holding the Camera, of such a height that the tube of the Microscope when inclined shall be precisely in the centre of the Camera, which is firmly secured to the platform by a thumb-screw beneath.

The Camera box, which is square to allow reversal of the plates, has a removable cone front, and bellows sliding upon a frame, with an extension of three or four feet, which has been found sufficient for all ordinary work, though it could be increased to any desired extent. A simple form of clamp holds the focusing frame tightly at any point of extension. A second front is provided to replace the one carrying the Cone, to which any ordinary photographic lens may be fitted, thus providing an excellent Camera for copying or other studio or laboratory purposes. The focusing screen is of glass, with an exceedingly fine ground surface mounted in a hinged frame, which is turned aside when the plate-holder is inserted. This screen is only used, however, in adjusting and centering the object, the final and delicate focusing being done on a sheet of plate-glass, as presently to be described.

The plate-holder (single) is square, opening at the back to admit the plates, which can be placed either vertically or horizontally. The usual size of plate employed is $4\frac{1}{2} \times 5\frac{1}{2}$ inches, but there is a "kit" furnished also, which permits the use of plates $3\frac{1}{2} \times 4\frac{1}{2}$ —the proper size for Lantern Positives—which can be very readily made by contact printing from the finished negatives.

Any coal oil or petroleum lamp of good illuminating power, and which can be placed at any desired height above the table, may be used. The Duplex Lamp, figured in the illustration on page 25, is admirably adapted to use with this Camera. It gives a strong white light through the glass composing its front, all the other rays being cut off by the metallic chamber and chimney containing the flame. It can be raised to any required height, and is recommended as being the best lamp for the purpose with which we are acquainted.

Although any Microscope Stand with axial inclination may be used, it has been found that those of the size and general form of Beck's National and "Ideal" Stands are the best adapted to this class of work. The shortness of tube of the "Ideal" renders it specially valuable, whilst the revolving stage adds greatly to the proper adjustment of the object in the centre of the focusing screen, and the sub-stage carrying an achromatic Condenser is almost indispensable. A Mechanical Stage will also be found to greatly facilitate the necessary manipulations; though the very simplest form of stage, with clips, will, with a little care and patience, answer every requirement.

In using this simple apparatus, the base-board is to be placed upon a solid table and the Camera firmly secured to the platform, as shown in the illustration. The Microscope (from which the Eye-piece has been removed, and the tube lined with a roll of dead black paper) is to be inclined to a horizontal position and firmly secured to the board by turn-buttons, with the end of the body inserted in the Cone front of the Camera; about the joining of which a piece of black cloth or velvet is to be wrapped to exclude all extraneous light. The lamp is now to be lighted and raised to such a height as will bring the flame exactly even with the centre of the stage; the direct light being used without the mirror, which must be removed. It is presumed that the proper object-glass has already been attached to the Microscope body, and that an Achromatic Condenser has likewise been inserted in the Sub-stage. A Kellner Eye-piece answers admirably for this purpose. A secondary Condenser is sometimes necessary between the lamp and stage, as shown in the engraving, to secure a bright and even illumination all over the focusing screen. This accomplished, the object to be photographed is placed upon the stage, secured in position by the clips or slides, and focused; which is readily done with the coarse adjustment, for the bellows of the Camera being still closed, one can observe the image on the screen and manipulate the milled head of the adjustment at the same time.

The image having been accurately centered on the screen, the bellows is to be extended until the desired magnification is reached, when it will be found that its sharpness is considerably reduced, whilst the screen has been removed so far from the object that it is impossible to readjust the focus and observe the image at the same time without some special appliance, controllable from the screen end of the Camera. A very simple contrivance has been adopted in this case, which works with the utmost smoothness and delicacy. A groove is turned in the periphery of the fine adjustment screw, around which a small cord is passed, and carried through a succession of screw-eyes on either side of the base-board to the rear, where a couple of small leaden weights are attached to its ends, thus keeping the cord taut. A very slight pull on either side, whilst the eye is fixed upon the image on the screen, suffices to adjust the focus with the utmost exactness. A glance at the illustration will show the arrangement of this focusing cord, which is applicable alike to stands having the fine adjustment screw on the nose-piece or at the rear of the compound body.

Since no ground-glass has a sufficiently fine surface to admit of really sharp focusing of the image, with even moderately high powers—the final adjustment is made as follows: The front and back of the plate-holder having been removed, a sheet of plate-glass the size of the gelatine plate to be used is inserted, and the holder adjusted to the Camera, when, by means of a focusing glass placed against the outer surface of the plate, a sharp and accurate adjustment can be made in a moment, after which nothing remains to be done toward securing the negative but to substitute (in the dark room) a sensitive plate for the plain glass, attach the holder to the Camera, and make the exposure.

Gelatine plates, possessing the two qualities of extreme sensitiveness and great density after development, are essential for Photo-Micrographic work. We specially recommend the Harvard Seed and Ripley plates as possessing these qualifications in an eminent degree. But for all objects possessing varieties of color, especially varying shades of orange, yellow, or blue, Orthochromatic plates are infinitely superior to all others—in fact, indispensable to the securing of satisfactory results. Carbutt's Orthochromatic plates meet this want perfectly, and are a boon to the Photo-Microscopist.

It having been found by actual work that the chemical and visual foci of the rays from a lamp are almost exactly coincident, there is no need of employing specially corrected objectives with this apparatus. And the following table of

exposures with Beck's Objectives may be depended upon as an accurate basis for work with the average of objects to be photographed, using "Diamond" plates:

$1\frac{1}{2}$	inch,	3 to 45	seconds.
$\frac{3}{4}$	"	$\frac{1}{4}$ to $1\frac{1}{2}$	minutes.
4-10	"	$\frac{1}{2}$ to 3	"
1-5	"	2 to 7	"
1-10	"	5 to 10	"

For Opaque Objects, illuminated by sun-light, exposures of six to twenty seconds, depending upon the power employed and reflecting qualities of the specimen itself, will generally be found sufficient.

A Binocular Microscope may be used for photographing quite as well as a Monocular by removing the Eye-piece of the straight tube, and arranging the prism for monocular illumination.

DIRECTIONS FOR MAKING THE NEGATIVES.

To any one familiar with the ordinary processes of photography, the foregoing directions will be all-sufficient for the production of finished Negatives. But since there will, doubtless, be many Microscopists desirous of photographing their preparations, who have no knowledge whatever of the latter art, the following simple directions are given to enable them so to do readily and with certainty.

Presuming that all the preliminaries as described have been attended to, and that the plate-holder, with its sensitized plate, has been attached to the Camera, proceed to make the exposure. A card having been placed between the lamp and stage of the Microscope, to prevent all light from entering the tube, the slide of plate-holder covering the plate is to be withdrawn. Wait a moment to allow the subsidence of all tremor, then gently remove the card and allow the light to fall upon the object, whilst (watch in hand) the time is carefully noted. When the full exposure is reached, replace the card and insert the slide in plate-holder, when the latter may be removed from the Camera box in safety. If more than one negative is to be made, it will be best to do them all before proceeding with the development, after a few experiments have given the operator a fair acquaintance with his subjects and time of exposure.

The development may be made either by Ferrous Oxalate, Pyro, or Hydrokinon, as the operator may prefer. The Pyro has the writer's preference, as being more easily controlled, and producing negatives of greater density than the others. Formulæ for all, however, are given, and the student may take his choice, with a certainty of success if directions are carefully followed.

To make the Ferrous Oxalate developer, two solutions are necessary:

No. 1.—Neutral Oxalate of Potassium.....16 ounces.
Hot water.....48 "

Dissolve and add sufficient Citric acid to render the whole decidedly acid; filter.

No. 2.—Proto-sulphate of Iron..... 8 ounces.
Hot water.....16 "

Dissolve and add 16 drops of Sulphuric acid; filter. Both these solutions will keep indefinitely.

To make the developing mixture, add one-half ounce of No. 2 solution to three ounces of No. 1, which will be sufficient to develop six plates of the size employed, one after another.

The work thus far (with the exception of placing the plate in holder) has been done in the full light of day or lamp—but now we must enter the dark room and depend solely upon the ruby light from our lantern. Remove the plate from the holder, place it in the developing tray, and pour the Ferrous Oxalate fluid over it with a rapid but steady sweep, to prevent the formation of air-bubbles, which may be still further guarded against by brushing the surface carefully with a camel's-hair pencil. It is scarcely necessary to add that the film side of the plate is to be kept uppermost.

If the exposure has been correctly timed, the image will begin to appear in from ten to twenty seconds; first the high lights, then the shadows, gradually deepening until the whole picture seems to have sunk, as it were, beneath the surface of the film and to appear on the back of the plate. Do not be afraid of overdoing the matter. A properly exposed plate can scarcely be over developed by Ferrous Oxalate; density is necessary to the production of satisfactory prints, and is much better obtained in the development than by after intensification.

If the image appears very suddenly, flashing from all portions of the plate at once, it is an evidence of *over-exposure*, the remedy for which is to remove the plate at once to a vessel of water, add a few drops of a solution of Bromide of Potassium to the developer, return the plate to same, and finish the development. If, on the other hand, the image either does not appear at all, or so thin and indistinct as to make certain no printing density can ever be reached by the most prolonged development, it is a sure sign of *under-exposure*, for which there is no other remedy than to throw the plate away and try again.

The development completed, the plate is to be thoroughly washed in water and placed for a minute or two in a saturated solution of alum to harden the film, and then (after again washing) it is to be transferred to a solution of "Hypo" for fixing. The latter is made as follows:

Hypo-sulphite of Soda.....	8 ounces.
Water.....	32 "

The plate must be left in this solution until all milkiness has disappeared from its back, leaving only the clear negative; after which another washing, a further soaking in the alum bath, and a thorough washing in pure water, to remove all traces of the Hypo, followed by the final drying, give the finished negative ready for printing from.

If the Pyro development be preferred, the following formula will be found most satisfactory:

No. 1.—Distilled Water.....	48 ounces.	No. 2.—Carbonate Soda.....	4 ounces.
Sulphite Soda.....	8 "	" Potash....	4 "
Dissolve and filter; then add:		Water	24 "
Sulphuric acid, C. P. 15 minims		Dissolve and filter.	
Pyrogallie "	1 ounce.		

To use, add to two ounces of No. 1, two drachms No. 2, and flow over the plate. If no image appears within half a minute, add of No. 2, drop by drop, until development begins. After detail is all out, if insufficient density results, add more of No. 1 solution. In case of over-exposure restrain with solution Bromide Potassium or by diluting with water. Use the same developer over and over again.

From various causes it will occasionally happen that the negative refuses to acquire sufficient density for printing, and no amount of care or patience in the development will remedy the trouble. Recourse must then be had to *intensification*, and the following formula will be found to give the most satisfactory

results. The utmost care must, however, be taken in its use, as both solutions are deadly poisons:

No. 1.—Bi-chloride of Mercury	96 grains.
Bromide of Potassium.....	96 “
Distilled Water.....	12 ounces.
No. 2.— <i>Crystallized</i> Cyanide of Potassium.....	90 grains.
Nitrate of Silver	96 “
Distilled Water.....	12 ounces.

To use, wash the negative thoroughly in cold water and place in a tray containing No. 1 until it is well grayed over, taking care not to overdo the matter, or too great density will be the result. Then wash again thoroughly in clean water and transfer to solution No. 2, where it must remain until all the grayness has disappeared from the back, but not longer, as a reduction of the density then begins to take place. Remove to clean water and wash again most *thoroughly*; indeed, this is the most important axiom in Photography—*wash thoroughly*.

After using the intensifying solutions, return each to its respective bottle, as they can be used over and over again almost indefinitely. And, again, be cautioned as to their deadly poisonous natures, taking every precaution to prevent possible accidents.

After the final washing, the negative must be placed on a rack to dry, which it must be allowed to do spontaneously, and the film side must not be touched with anything until entirely hard. Varnishing is not *necessary*, unless a number of prints are to be made, but it is always *desirable*, since it will save the negative from many a possible injury.

DIRECTIONS FOR MAKING PAPER-PRINTS.

The necessary articles for this work—after the negative is secured—are a printing-frame, sensitized paper, cards for mounting the same upon, and materials for toning and fixing the prints. The printing-frame should be a deep one, with a sheet of plate-glass in front to support the negative, thereby lessening the danger of breaking the same. This supporting-glass is also necessary for making transparencies for the lantern by contact printing. Ready sensitized paper should be used, as it produces quite as good prints as those made upon paper freshly silvered, without the trouble and stains attendant upon the latter operation by novices. This paper should be cut and kept in a subdued light, to prevent changing. Fuming with ammonia will add to the brilliancy of the prints. This must be done immediately before printing.

The negative is to be placed in the printing-frame film side up, and the paper is to be laid upon it, sensitized surface down—this in a subdued light; then lay a pad of felt-cloth upon the paper and insert the back of the frame, fastening it down with the spring catches, and place it in the light to print. Some negatives will require the direct rays of the sun, others print better if a piece of tissue paper or ground glass be placed over them to modify the light. Experience and experiment will alone enable the student to determine which plan to pursue. The time required for printing will also vary greatly, according to the density of the negative and whether it has been developed with Ferrous Oxalate or Pyro; the former generally yielding the quickest prints. The printing must be examined as it proceeds by opening one-half of the back of frame in a subdued light. Do not print too deeply, as the beauty and usefulness of Photo-micrographic prints depend largely upon all the delicate markings being visible, which

is not the case if the printing is carried too far. As soon as the print is found to be dark enough, it must be removed to a light tight drawer or box, to await the operation of toning, which must be as soon as possible if freshly sensitized paper has been employed, but may be postponed several days with the ready sensitized.

TONING THE PRINTS.

Gold is the material that really does the toning, but it has to be used in combination with some other which will neutralize its acidity and assist in giving a pleasant and harmonious tone to the finished prints. Very many formulæ for this purpose have been published—Bi-carbonate of Soda, Borax, Acetate of Soda, etc., all of which are good and will give satisfactory results. The following will be found simple and good: Dissolve seven and a half grains of the Chloride of Gold in as many ounces of distilled water and keep it in a glass-stoppered bottle as a stock solution. To make the bath, which must be done just before using, dissolve twenty grains of Phosphate of Soda in eight ounces of water, with a pinch of table-salt. The proportion of gold required for toning is one grain to the sheet of paper (18x22); if, therefore, you have made that many prints, add one ounce of the gold solution to the bath, which will give one grain of same, and more or less, in proportion to the number of prints to be toned. If two sheets are to be done at once, the amount of water and soda must be doubled as well as that of the gold.

The prints, if made upon ready sensitized paper, must have previously been washed in a few changes of water to remove most of the free silver, an operation which will require a few minutes only. The first water must be poured off immediately and the subsequent washings at intervals of about one minute. To the last washing add a pinch of table-salt, which will turn prints made on ready sensitized paper a brick-dust red in a few moments. From this final washing they must be removed to a vessel of clean water, when they are ready for toning. All the foregoing operations, as well as the toning, should be done in a light sufficiently bright to see clearly, but not in the full light of day, as this will impair the brilliancy of the prints.

Everything being in readiness, place in the toning-bath eight or ten of the prints, one after another, face up, and keep them moving about, to insure evenness in the toning. They will soon reach the desired tint, which should be a little deeper than the finished prints are to be, since they will lose somewhat in the final fixing. As each one reaches the proper tone, remove it to a vessel of water and replace it with an untuned print, until the whole are done, when the bath is to be thrown away, as it will not keep.

FIXING THE PRINTS.

If all the foregoing operations have been successfully conducted, the prints are now perfect, and objects of beauty, but they would quickly fade if not "*fixed*." Immersion in a solution of Hypo-sulphite of Soda is necessary to this end, followed by a prolonged washing in water, to remove all traces of the former. For be it known to the novice, "*Hypo*" is a good friend, but a very cunning and to be dreaded enemy. If the fingers come in contact with it, they must be immediately washed clean; vessels or trays in which it is used must be kept for that purpose only. No trace of it must be allowed to remain in the finished prints.

otherwise, ugly yellow stains will be the result. The fixing bath must be used but once, then thrown out, and the tray well washed and wiped dry.

The fixing solution is made as follows:

Hypo-sulphite Soda.....	2 ounces.
Water.....	10 “

Immerse the prints one by one in this solution, and keep them moving about for fifteen or twenty minutes, after which they must be placed in clean water, which should be frequently changed to insure the entire removal of the Hypo. Some hours are required for this purpose; indeed, an all-night washing in running water, if practicable, is to be recommended.

The prints, which should have been trimmed to a uniform size before toning, are now ready for mounting upon card-board. The ordinary cabinet mounts will be found best adapted to the purpose. The operation is a simple one. The prints must be removed from the water one by one, carefully drained of all superfluous moisture, and placed in a pile, one above another, face downward, on a sheet of glass. Brush the uppermost one over with a thin layer of parlor paste, and place it carefully on the card mount, pressing it down with a soft cloth. Proceed in same manner with the rest until all are finished, when they may be placed in a pile with a blotting pad between each and subjected to a slight pressure until quite dry. Burnishing will greatly improve the appearance and sharpness of the prints. This is best done with Entriken's burnisher, as named in this list.

The appearance of a Photo-micrograph is greatly improved by printing it with a mat of non-actinic paper (having a circle cut from its centre two and three-quarters inches in diameter) interposed between the negative and the front of plate-glass in the printing-frame. This gives a clean-cut circle of the object alone, leaving a margin of pure white paper around it. The effect is neat and pleasing. In making the negative, it is well so to centre the object as to allow of such printing.

A handsomely mounted sample print will be mailed to any address on receipt of twenty cents.

PRINTS ON BROMIDE PAPER.

The introduction of Eastman's Bromide Papers has given us the means of producing most beautiful and *permanent* prints of microscopic objects, superior in every way to those made on ordinary Albumen paper. The process is admirably adapted to book illustration, since the prints require no mounting, and can be bound in with the regular pages the same as an ordinary engraving. For this purpose the heavy, smooth surface, or B paper should be used, and the print made with a mat, so as to leave a white margin. The beauty and delicacy of detail obtainable by this process are quite unequalled by any other, the prints resembling the finest line engravings or most exquisite drawings. In contact printing the entire work, exposure, developing, etc., is done by lamp or gaslight, enabling the busy worker whose daylight hours are otherwise occupied to pursue his favorite pastime during the leisure of the long winter evenings. This feature alone, gives the process an advantage over that with Albumenized paper, whilst the results, as stated, are generally far superior to those obtainable with the latter.

Full directions for use accompany each package of the paper, the operations are simple and easily acquired, and we hold ourselves in readiness, either per-

sonally or by correspondence, to give all our friends and customers full instructions that will insure their complete success in its use.

A sample print will be mailed to any address on receipt of fifteen cents to cover expenses.

LANTERN TRANSPARENCIES.

These very beautiful and valuable slides may be readily made from *good* negatives, either by contact printing or with the aid of a camera. If the former process be employed, the negative must be specially made of proper size.

Specially prepared *slow* plates are necessary for lantern slides, and these are furnished to us of exquisite quality by Eastman, Carbutt, and Ripley, (Nos. 3073-74* of this Catalogue). These may be developed either with Pyro, Ferrous Oxalate, or Hydrokinon, preference being given to the latter from its almost perfect freedom from fog or veiling under any circumstances. The following formula for its preparation and use is recommended:

No. 1.—Sulphite of Soda.....480 grains.
 Hydrokinon.....120 “
 Distilled Water 8 ounces.

No. 2.—Carbonate of Soda120 grains.
 “ “ Potash120 “
 Distilled Water 8 ounces.

Normal Developer, equal portions of Nos. 1 and 2 and water.

This developer allows of great latitude in exposure, acting slowly, building up the picture most beautifully until any desired amount of density is reached without veil or fog. We keep it ready prepared for use, together with Pyro and Ferrous Oxalate Developers for those who do not care to be troubled with their compounding. The Hydrokinon Developer should not be thrown away after using, but carefully filtered into a bottle for future use, as it retains its active qualities almost indefinitely.

For making lantern slides by contact printing, the following directions will be found all sufficient:

By the red light of the lantern, place a negative in the printing-frame, film side *uppermost*, and upon it lay a *slow* gelatine plate, film side *down*, so that the two coated surfaces are in contact. Replace the pad and back, and, covering up the front, carry the frame to where the light of a lamp or gas flame may be allowed to fall upon it at a distance of about two feet. The exposure must be varied according to the density of the negative from two to twenty seconds, averaging about ten, but only to be determined by practice and experience. Returning to the dark-room, the plate is to be developed precisely as was the negative, care being taken not to carry the development too far, as much density is to be avoided in transparencies intended for the lantern. If successful, the result will be a transparency full of vigor and sharpness, with clear glass in all the high lights and no appearance of smokiness. When dry, the slide is to be covered with one of same size of clear glass, a mat of black paper with opening of suitable size and shape being placed between them, and the edges bound with *needle paper*, attached by means of parlor paste.

The possessor of the Improved Photo-Micro. Camera, No. 2641, has the double advantage of being able to make his lantern slides either by contact or through the Camera by means of ordinary Rectilinear Lens. He has no need to take thought of size in making the negative, as one covering the whole size of the largest plate ($4\frac{1}{4} \times 5\frac{1}{2}$), can be reduced to lantern slide size in the Camera, or a small negative can be enlarged in a Bromide print. We, therefore, recommend

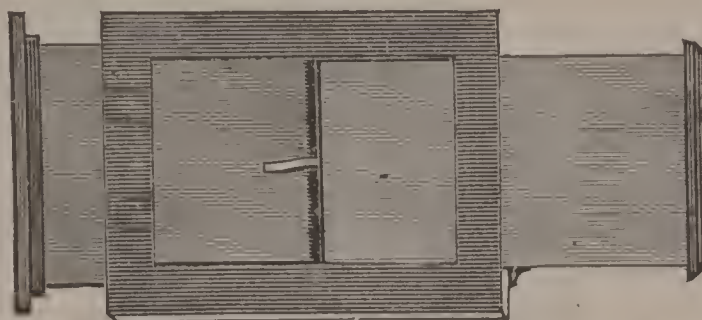
the purchase of the improved form at the outset, and, indeed, the rapidly increasing demand is mainly for this style.

Eastman's recently introduced Transferotype paper is admirably adapted to the making of lantern transparencies. Its manipulation is simple, the results certain, and the cost less than that of any known process within the reach of the ordinary student or amateur. Full directions for working it will be sent.

A sample Lantern Slide mailed to any address on receipt of sixty cents.

PARTS AND ACCESSORIES OF CAMERAS

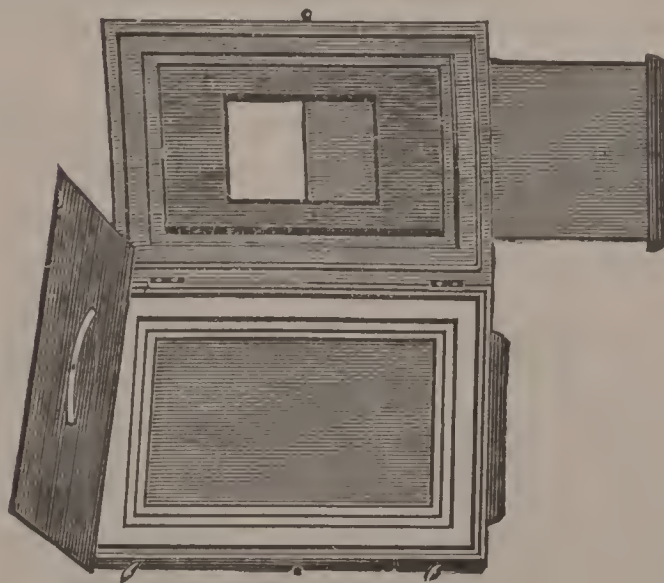
PLATE HOLDERS.



Nos. 2650-2653.

No.										PRICE.
2650.	NEW	STYLE	DOUBLE	PLATE	HOLDER,	3½ x 4½,	.	.	.	\$1 50
2651.	"	"	"	"	"	4 x 5,	.	.	.	1 75
2652.	"	"	"	"	"	4½ x 5½,	.	.	.	1 85
2653.	"	"	"	"	"	4½ x 6½,	.	.	.	1 90
2654.	"	"	"	"	"	5 x 7,	.	.	.	2 10
2655.	"	"	"	"	"	5 x 8,	.	.	.	2 20
2656.	"	"	"	"	"	6½ x 8½,	.	.	.	3 80
2657.	"	"	"	"	"	8 x 10,	.	.	.	5 00
2659.	NEW	MODEL	"	"	"	4 x 5,	.	.	.	1 50
2660.	"	"	"	"	"	4½ x 6½,	.	.	.	1 75
2661.	"	"	"	"	"	5 x 8,	.	.	.	2 00
2662.	"	"	"	"	"	6½ x 8½,	.	.	.	3 00
2663.	"	"	"	"	"	8 x 10,	.	.	.	4 00

"DAISY" PLATE HOLDERS.



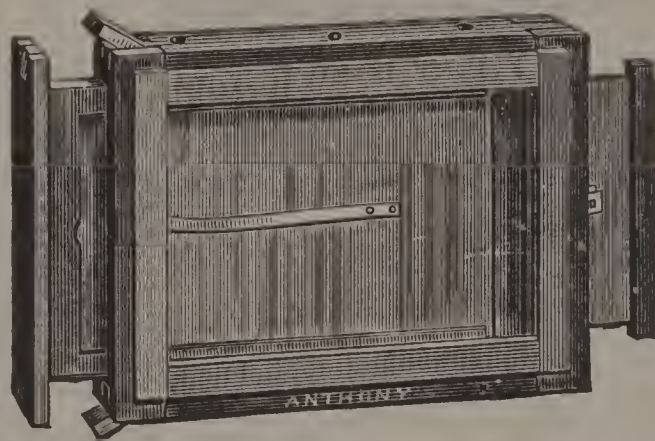
Nos. 2665-2671.

"This holder is a Daisy." The frequent repetition of this exclamation fixed the name by which it is designated. It has the great merit of being lighter and of

occupying less space than any other substantial holder that has ever been devised. Although constructed to hold two plates, it is not thicker than a single holder. The Daisy Holder opens like a book when the dry plates are being put into or taken out of it, and is so arranged that light cannot penetrate through from one side to the other. It also permits the use of "Kits," whereby smaller plates may be employed if desired.

No.							PRICE.
2664.	"DAISY"	DOUBLE PLATE HOLDER,	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$	.	.	.	\$1 75
2665.	"	"	4 x 5	.	.	.	2 00
2666.	"	"	4 $\frac{1}{4}$ x 5 $\frac{1}{2}$	.	.	.	2 10
2666*.	"	"	4 $\frac{1}{4}$ x 6 $\frac{1}{2}$	.	.	.	2 25
2667.	"	"	5 x 7	.	.	.	2 35
2668.	"	"	5 $\frac{1}{2}$ x 7	.	.	.	2 50
2669.	"	"	5 x 8	.	.	.	2 50
2670.	"	"	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	.	.	.	4 20
2671.	"	"	8 x10	.	.	.	6 00

NOVEL VIEW PLATE HOLDERS.



No. 2675.

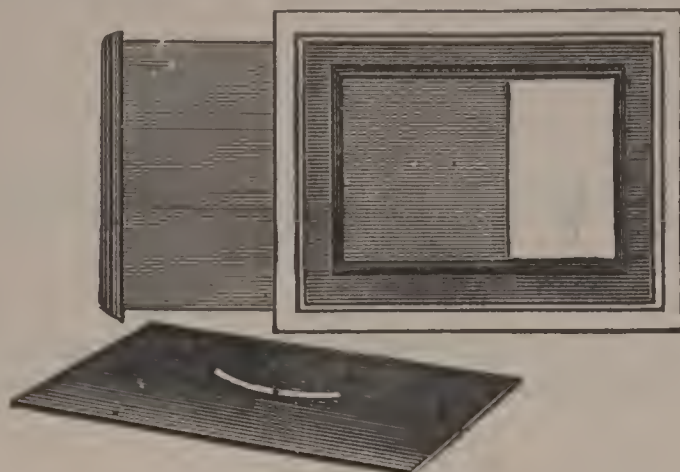
Anthony's Novel View Plate Holders are so arranged that one or two 4x5 plates can be used in a 5x8, one or two 4 $\frac{1}{4}$ x6 $\frac{1}{2}$ can be used in a 6 $\frac{1}{2}$ x8 $\frac{1}{2}$, or one or two 5x8 in an 8x10 plate holder. Thin wooden frames can be supplied for holding still smaller sizes, if desired, so that the amateur can experiment with smaller plates than the extreme limit of his holders, and at much less expense.

2675.	NOVEL VIEW DOUBLE PLATE HOLDER,	4 x5	for Camera 2555,	.	\$2 00
2676.	"	"	4 $\frac{1}{4}$ x6 $\frac{1}{2}$	" 2556,	2 25
2677.	"	"	5 x8	" 2557,	2 25
2678.	"	"	6 $\frac{1}{2}$ x8 $\frac{1}{2}$	" 2558,	4 00

BLAIR'S "FEATHER-WEIGHT" PLATE HOLDERS.

2679.	"FEATHER-WEIGHT"	DOUBLE HOLDER,	4 x 5,	.	.	.	1 00
2680.	"	"	4 $\frac{1}{4}$ x 5 $\frac{1}{2}$,	.	.	.	1 00
2681.	"	"	5 x 7,	.	.	.	1 25
2682.	"	"	5 x 8,	.	.	.	1 35
2683.	"	"	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$,	.	.	.	1 60
2684.	"	"	8 x10,	.	.	.	1 85

THE FLAMMANG SINGLE PLATE HOLDER.



Nos. 2685-2686.

2685.	THE FLAMMANG SINGLE PLATE HOLDER,	4½ x 5½,	with Kit,	. . .	\$1 85
2686.	"	"	"	8 x 10	5 00

These Holders are made in all sizes, but we have selected the above two as specially suited to Camera No. 2603, and Photo-Micrographic Cameras Nos. 2640-41.

THE EUREKA DOUBLE PLATE HOLDER.



Nos. 2687-2695.

The Eureka Holder, just introduced, supplies the demand for a light, strong, substantial, and light-tight double plate holder, at a low price. It is only ⅝ of an inch thick, is made all in one piece, and is very convenient to fill—an important point for those who have to work in ill-lighted dark-rooms. The plates are both inserted through one slide-opening and locked into place by a simple bolt, as seen in the illustration. The septum is a piece of corrugated mill-board, which occupies very little space between the two plates.

No.						PRICE.
2687.	EUREKA DOUBLE PLATE HOLDER,	3½ x 4½,				\$1 40
2688.	"	4½ x 5½,				1 40
2689.	"	4½ x 6½,				1 40
2690.	"	5 x 7,				1 50
2691.	"	5 x 8,				1 60
2692.	"	6½ x 8½,				2 00
2693.	"	8 x 10,				2 40
2694.	"	10 x 12,				3 50
2695.	"	11 x 14,				4 00

TRIPODS.

BLAIR'S COMBINATION TRIPODS.

These Tripods combine the rapidity of the folding with the convenience of the sliding forms, and fold shorter than almost any others in the market. They are made of the best materials, and are first-class in all respects.

No.		PRICE.
2696.	BLAIR'S COMBINATION TRIPOD, Nos. 0 and 00, for $\frac{1}{4}$ to 5x8 Cameras,	\$4 00
2697.	" " No. 1, for 6½x 8½ Cameras, . . .	4 50
2698.	" " No. 2, " 8 x10-11x14 Cameras, . .	6 00

ANTHONY'S FAIRY TRIPOD.



Showing one leg of Fairy Tripod partly folded.



Showing one leg of Fairy Tripod folded.



Showing Fairy Tripod set up ready for use.

No. 2699.

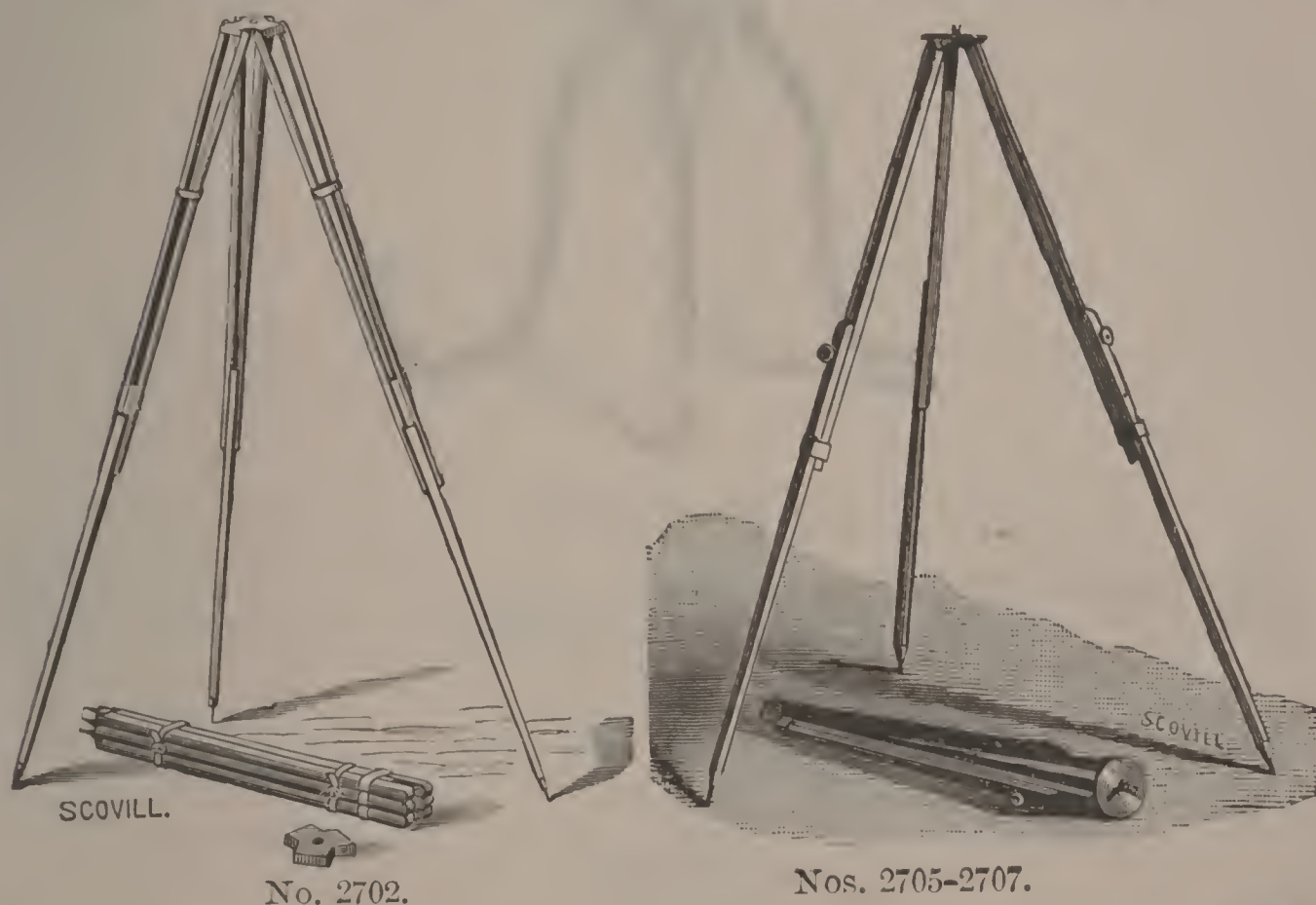
2699.	ANTHONY'S FAIRY TRIPOD,	\$5 00
	This Tripod is but 16 inches long when folded, and weighs only two pounds. It can be readily carried in an ordinary hand-bag.	
2701.	TAYLOR FOLDING TRIPOD. For any size of Cameras to 8x10, . . .	2 25

THE TAYLOR FOLDING TRIPOD.

No.	PRICE.
2701. TAYLOR FOLDING TRIPOD. For any size of Cameras to 8x10,	\$2 25

The Taylor Folding Tripod is very firm when set up and folds compactly by simply pressing together the two upper joints of each leg, thus unsetting them from the pins on the brass top, and then doubling them over on to the third joint. This movement is naturally reversed when placing the tripod in position to support the camera. The brass top should have the side uppermost which has the arms flush.

SCOVILL'S ADJUSTABLE AND EXTENSION TRIPODS.



No.	PRICE.
2702. SCOVILL ADJUSTABLE TRIPOD. (<i>Feather Weight</i>),	\$3 50
2703. SCOVILL ADJUSTABLE JOINTED TRIPOD, will fold and pack in a 22-inch valise,	4 00
2705. SCOVILL EXTENSION TRIPOD, No. 1, for 1-4; 4½x5½ Cameras,	3 00
2706. " " " No. 2, " 5x7; 5x8 "	3 25
2707. " " " No. 3, " 6½x8½; 8x10 "	5 00

Nothing more compact, graceful in appearance, or light in weight than the new Adjustable Tripod, just introduced, has yet made its appearance. It can be adjusted to any height, or to the most uneven surface, folds into a very small compass, and is very handsomely finished. The top is covered with billiard cloth, to prevent marring the polish of the Cameras, and the screw is not detachable. It is especially suited to the use of lady amateurs.

The Extension Tripod possesses special advantages. It can be set up, ready for use, more quickly than any other, and with less trouble. By turning the brass buttons shown in the accompanying illustration, the legs may, "in a twinkling," be extended to the desired length and fastened. Another commendable feature of the Extension Tripod is, that it has no detachable parts to be misplaced or lost.

THE ACME CAMERA STAND.



Nos. 2710-2711.

No.								PRICE.
2710.	THE ACME CAMERA STAND,	for $\frac{1}{2}$ and 4-4,	.	.	.	.	.	\$ 8 00
2711.	"	"	for 8x10 and 10x12,	.	.	.	.	12 00

(ILLUSTRATION IN NEXT EDITION.)

Nos. 2712-2713.

No.								PRICE.
2712.	MAGIC CAMERA STAND,	for 11x14,	.	.	.	.	.	\$15 00
2713.	"	"	for 14x17,	.	.	.	.	20 00

LENSES.



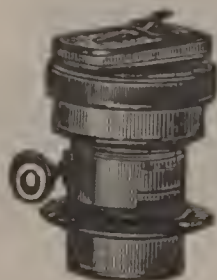
Nos. 2720-2722.

DARLOT'S PORTRAIT LENSES.

No.									PRICE.
2720.	DARLOT PORTRAIT LENS,	$\frac{1}{4}$ size,	$4\frac{1}{2}$ inch focus,	.	.	.	.		\$8 75
2721.	"	"	$\frac{1}{3}$ " $5\frac{1}{2}$	"	.	.	.	.	14 50
2722.	"	"	$\frac{1}{2}$ " 7	"	.	.	.	.	17 50

Whilst very moderate in cost, these Lenses are of exceptionally fine performance, quite equal to the wants of the most advanced amateurs. They are also specially adapted to magic lantern and stereopticon purposes. We are direct importers of these and all others of Darlot's Lenses, which have our name engraved on them, and are sold with our guarantee.

VIEW LENSES.



Nos. 2725-2727.

DARLOT'S RAPID HEMISPHERICAL VIEW LENSES.

2725.	DARLOT RAPID HEMISPHERICAL LENS,	No. 1, for 4 x5 Cameras,	\$15 00
2726.	"	" " " " No. 2, " 5 x8, "	25 00
2727.	"	" " " " No. 3, " $6\frac{1}{2}$ x $8\frac{1}{2}$, "	35 00

These Lenses embrace angles from 60 to 75 degrees; are quick-acting, perfectly rectilinear, and provided with central-stops. They will be found very fine Lenses for landscapes, out-door groups, and instantaneous work; also for copying engravings, maps, architectural subjects, etc.



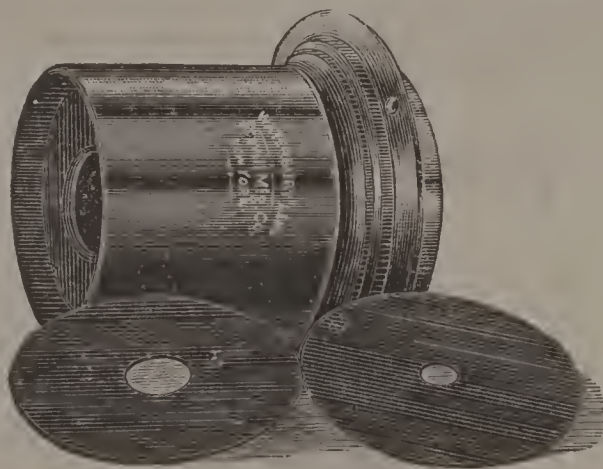
Nos. 2730-2733.

VOIGTLAENDER'S EURYSCOPE VIEW LENSES.

No.					PRICE.
2730.	IMPROVED EURYSCOPE VIEW LENS, No. 0, for 4 x 5 Cameras,	.			\$27 06
2731.	" " " No. 00, " 5 x 8 "	.			37 50
2732.	" " " No. 1, " 6½ x 8½ "	.			45 00
2733.	" " " No. 2, " 8 x 10, "	.			52 00
2734.	" " " No. 3, " 10 x 12, "	.			65 00

The Euryscope Lenses are too well known to need any further comment. They are in extensive use by professionals and amateurs throughout the United States.

WATERBURY LENSES.



Nos. 2740-2741.

For landscapes pure and simple, or those in which buildings are mere accessories, single combination lenses are by many authorities considered quite equal, if not superior, to the more expensive doublets. They are not suited to architectural work, owing to a slight spherical aberration, which gives some curvature to what should be straight lines. They are, however, very well adapted to the making of groups and all landscape views, and their extreme cheapness brings them within the reach of every one.

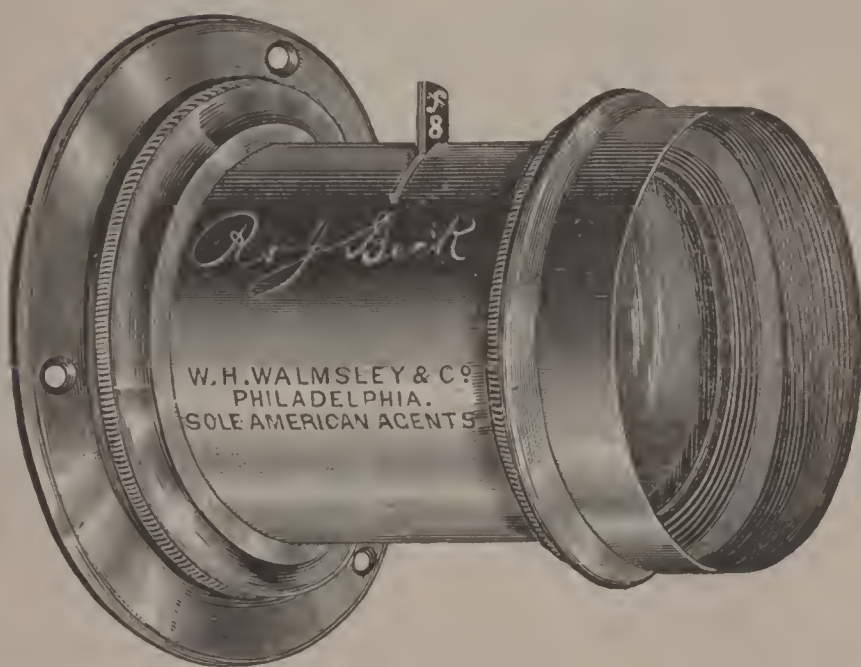
The Waterbury Lenses are excellent examples of this class of object-glasses, well corrected, rapid enough for instantaneous work, and provided with a set of diaphragms.

2740.	WATERBURY SINGLE, ACHROMATIC LENS, No. 1, 4x5,	.	.	.	\$3 50
2741.	WATERBURY SINGLE, ACHROMATIC LENS, No. 2, 5x8,	.	.	.	4 50

These Lenses can be had in matched pairs for Stereoscopic work.

BECK'S "AUTOGRAPH" RAPID RECTILINEAR LENSES.

R. J. Beck.



No. 2761. ACTUAL SIZE.

These Lenses, introduced by us in 1883, have met with such unqualified and extraordinary favor that the resources of the Messrs. Beck's manufactory are severely taxed to supply the demand. This success has been achieved, not by any extraordinary advertising or pushing, but simply by the intrinsic merits of the Lenses themselves, which have been at once manifest to all who have used them. We are in the receipt of numerous unsolicited testimonials in their favor, and most unhesitatingly present them to the public as being the *best* and *cheapest* lenses in the world. For portraiture they are unrivaled.

They are constructed upon entirely new and original formulæ, in the Microscope department of the Messrs. Beck's factory, and the same scientific skill and superior workmanship which for nearly forty years have made their Microscope Objectives world famous, are bestowed upon the manufacture of the "*Autograph*" Rectilinear Lenses, which name is now given them as a trade-mark, and which will in future be engraved upon every lens made by them.

These Lenses are perfectly Aplanatic, covering with full aperture, the size plate for which they are designated in the list, and much larger sizes when moderately stopped down. They are very rapid in action, rendering them particularly valuable for instantaneous and short-time exposures; are rigidly rectilinear and symmetrical; possess wonderful penetration and definition, and are the lightest and most compact of any lenses in the market—a matter of no small moment to the landscape photographer.

UNIFORM SYSTEM OF STOPS.

Exposure Ratio.....	4	8	16	32	64	128	256	512
Diam. of stop	f. 8	f. 11.3	f. 16	f. 22.6	f. 32	f. 45.2	f. 64	f. 90.5

The Stops or Diaphragms furnished with these Lenses are made and numbered in accordance with the recommendations of the Photographic Society of Great Britain, whereby each number is double that of the preceding one, and requires twice the exposure. The ratio is the same throughout the entire series, so that, for instance, No. 32 of the No. 10 lens will require the same exposure as the corresponding stop of the No. 1, although its *actual* size is much greater. Each diaphragm has the number and f. engraved upon it as shown in the illustrations, and the initial one (No. 4 or f. 8) is the full aperture of the lens.



DIAPHRAGMS of 5x4 LENS. ACTUAL SIZE.

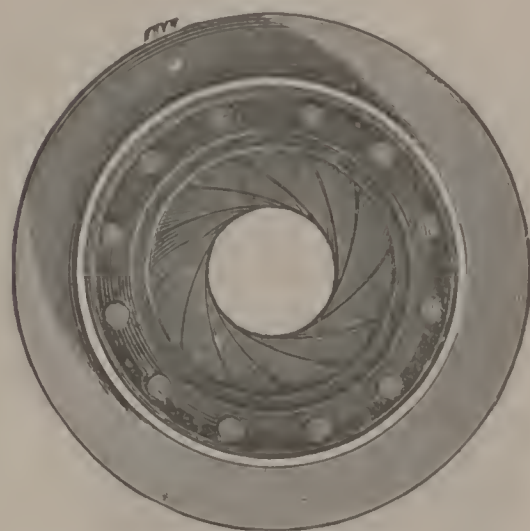
PRICE-LIST OF BECK'S "AUTOGRAPH" RAPID RECTILINEAR LENSES.

Catalogue Numbers.	Size Numbers.	Size of Plate, Full Opening.	Size of Plate, with Small Stop.	Diameter of Lenses.	Back Focus.	Equivalent Focus.	Angle of Aperture.	Price.
2760	1	3¼ x 4¼	4¼ x 6½	¾ in.	4½ in.	5 in.	75°	\$25 00
2761	2	4¼ x 5½	5 x 8	1 "	6 "	7 "	70°	30 00
2762	3	5 x 8	8 x 10	1¼ "	8 "	9 "	64°	35 00
2763	4	6½ x 8½	10 x 12	1½ "	10¼ "	11 "	67°	50 00
2764	5	8 x 10	11 x 14	1¾ "	12¼ "	13 "	66°	60 00
2765	6	10 x 12	14 x 17	2¼ "	14½ "	16 "	66°	75 00
2766	7	11 x 13	18 x 20	2½ "	16¾ "	18 "	66°	100 00
2767	8	14 x 17	20 x 22	3¼ "	22 "	24 "	66°	160 00
2768	9	20 x 22	24 x 30	3¾ "	27½ "	30 "	66°	200 00
2769	10	24 x 30	30 x 33		30 "	33 "	66°	250 00

BECK'S

"AUTOGRAPH" RAPID RECTILINEAR LENSES.

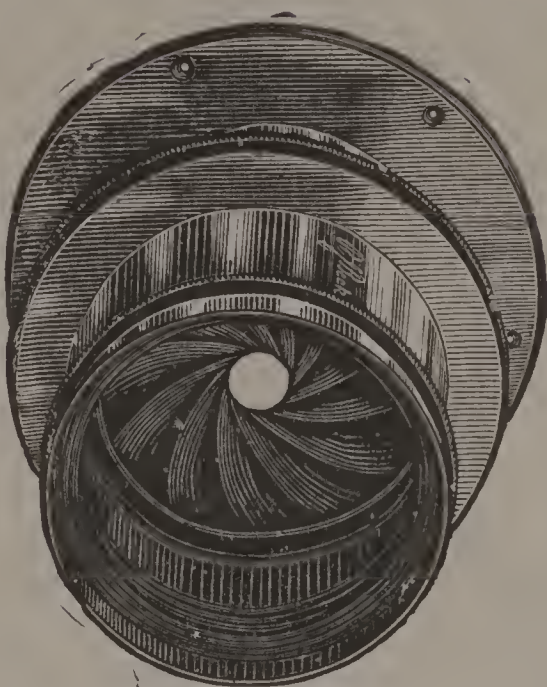
WITH IRIS DIAPHRAGMS.



Perhaps no more annoying occurrence can happen to the photographer in the field, than the loss of his Diaphragms; yet how often is he obliged to meet it. The thin sheets of metal have a perverse way of dropping into tangled grass or muddy streams, and eluding all attempts at recovery. Loss of time, temper, and money are thus incurred, which are happily rendered unnecessary by the Messrs. Beck's ingenious application of their well-known Iris Diaphragm (in use on their Microscopes for so many years), to their series of Rectilinear Lenses. These open or close in the regular standard series from f. 8—the full opening—to f. 90.5, the smallest stop used with the larger sized lenses; having a graduated and numbered scale with metal indicator. The whole affair adds almost nothing to the size of the mount, and is both dust and light-tight. The illustration gives an excellent idea of the arrangement.

Catalogue Numbers.	Size Numbers.	Size of Plate, Full Opening.	Size of Plate, with Small Stop.	Diameter of Lenses.	Back Focus.	Equivalent Focus.	Angle of Aperture.	Price.
2760*	1	3½ x 4½	4½ x 6½	¾ in.	4½ in.	5 in.	75°	\$30 00
2761*	2	4½ x 5½	5 x 8	1 " "	6 " "	7 " "	70°	35 00
2762*	3	5 x 8	8 x 10	1¼ " "	8 " "	9 " "	64°	40 00
2763*	4	6½ x 8½	10 x 12	1½ " "	10¼ " "	11 " "	67°	57 50
2764*	5	8 x 10	11 x 13	1¾ " "	12¼ " "	13 " "	66°	67 50
2765*	6	10 x 12	14 x 17	2¼ " "	14½ " "	16 " "	66°	83 50
2766*	7	11 x 13	18 x 20	2½ " "	16¾ " "	18 " "	66°	110 00
2767*	8	14 x 17	20 x 22	3¼ " "	22 " "	24 " "	66°	172 50
2768*	9	20 x 22	24 x 30	3¾ " "	27½ " "	30 " "	66°	212 50
2769*	10	24 x 30	30 x 33		30 " "	33 " "	66°	262 50

BECK'S "AUTOGRAPH" EXTRA RAPID RECTILINEAR LENSES.



Nos. 2770-2773.

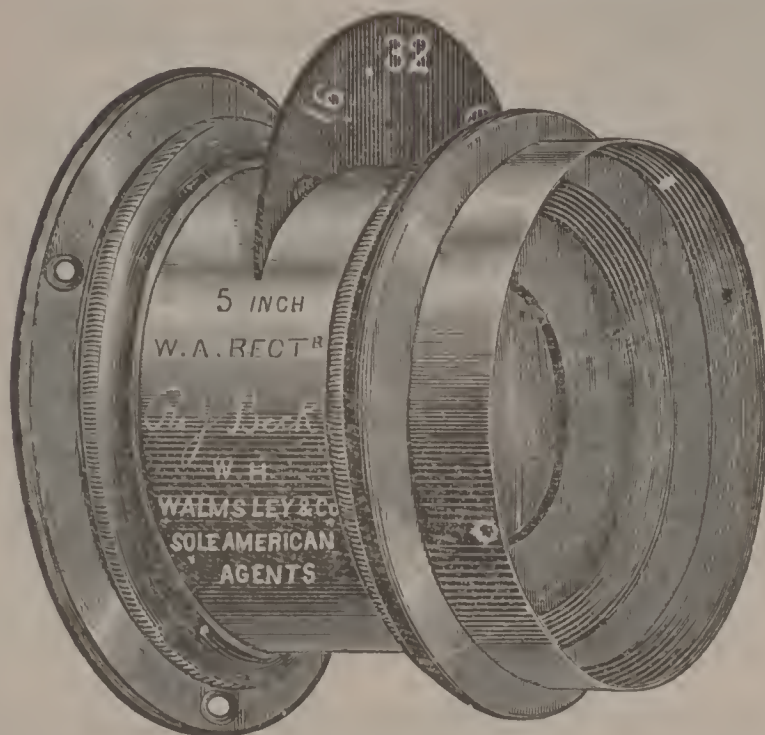
These new "Autograph" lenses are intended for instantaneous exposures in well-lighted studios and for very rapid work in those not so favorably situated, also for instantaneous shots on racing horses and other rapidly moving objects, requiring the shortest possible exposures.

The aperture of these lenses is one-sixth of their focal length, giving them a rapidity double that of the Rapid Rectilinear Series. Being made on the well-known Symmetrical type, they are absolutely rectilinear, and free from distortion or flare, possessing all the advantages in rapidity of the best type of Portrait Lenses, whilst the depth of focus and flatness of field are vastly increased. When stopped down they make, owing to their rectilinear construction, very fine View Lenses, and may be used for the same purposes as the Rapid Rectilinear Series. They are constructed from an entirely new optical glass, made especially for the purpose, and each is provided with the new Iris Diaphragms.

PRICE-LIST OF BECK'S "AUTOGRAPH" EXTRA RAPID LENSES.

Catalogue numbers.	Size Numbers.	Size for Portraits	Size for Views.	Back Focus.	Equivalent Focus.	Price with Iris Diaphragms.
2770	2	Cabinet.....	4½x5½	6 inch.	7½ inch.	65 00
2771	3	Boudoir	5 x7	7¾ "	9¾ "	80 00
2772	4	Panel.....	6½x8½	9½ "	11¾ "	110 00
2773	5	Imperial.....	8 x10	11¼ "	14 "	165 00

BECK'S "AUTOGRAPH" WIDE-ANGLE LENSES.



5x8. ACTUAL SIZE.

For many street views, architectural effects in confined situations, and most interiors, it becomes necessary to employ lenses of very wide angles and comparatively short focii. The objections to their more frequent employment are, exaggerated perspective and a tendency to distortion at the margin, which only the highest mathematical and mechanical skill in construction, can successfully correct. In no instance has the long experience of the Messrs. Beck been more conspicuously valuable than in the construction of the series of Wide-Angle Rectilinear Lenses now put upon the market, which are confidently recommended to the professional and amateur alike, as being the finest lenses of their class ever produced.

These lenses embrace an angle of fully 100° ; they are mounted in rigid settings or tubes, and furnished with *rotating* diaphragm plates, the stops of which bear the same number and ratios as those of the "Autograph" Rectilinear series. *The No. 1 size can be had in matched pairs for stereoscopic work.*

PRICE-LIST OF BECK'S "AUTOGRAPH" WIDE-ANGLE LENSES.

Catalogue Numbe.r.s.	Size Numbers.	Size of Plates, Full Opening.	Size of Plates, with Small Stops.	Back Focus.	Equivalent Focus.	Angle of Aperture.	Price.
2775	1	$3\frac{1}{4} \times 4\frac{1}{4}$	$4\frac{1}{4} \times 6\frac{1}{4}$	$2\frac{1}{2}$ in.	3 in.	100°	\$25 00
2776	2	$4\frac{1}{4} \times 5\frac{1}{2}$	5×8	$3\frac{3}{4}$ "	4 "	100°	30 00
2777	3	5×8	8×10	$4\frac{3}{4}$ "	5 "	100°	37 50
2778	4	$6\frac{1}{2} \times 8\frac{1}{2}$	10×12	$6\frac{1}{2}$ "	7 "	100°	50 00
2779	5	8×10	12×15	8 "	9 "	100°	65 00

DARLOT'S WIDE ANGLE LENSES.



Nos. 2785-2788.

No.		PRICE.
2785.	DARLOT'S WIDE ANGLE HEMISPHERICAL LENS No. 1, $3\frac{1}{4} \times 4\frac{1}{4}$, focus $2\frac{1}{2}$ inches,	\$12 50
2786.	DARLOT'S WIDE ANGLE HEMISPHERICAL LENS No. 2, 4×5 , focus 3 inches,	15 00
2787.	DARLOT'S WIDE ANGLE HEMISPHERICAL LENS No. 3, 5×8 , focus 5 inches,	20 00
2788.	DARLOT'S WIDE ANGLE HEMISPHERICAL LENS No. 4, 8×10 , focus 8 inches,	25 00

STEINHEIL LENSES.

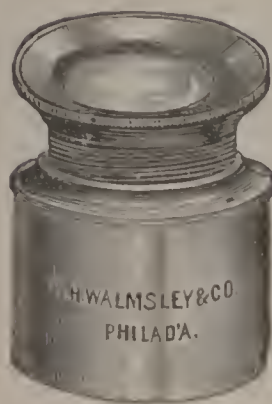
Full, illustrated Price-Lists of these justly celebrated Lenses will be mailed to any address on application.

GRAY'S PERISCOPE LENSES.

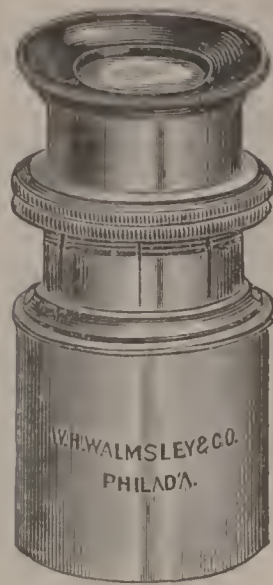
Catalogue No.	Size No.	Diameter of Lens.	Equivalent Focus.	Size of Plate, with Large Stop.	Size of Plate, with Small Stop.	Price.
2790	1	$\frac{1}{2}$	$2\frac{3}{8}$	3×3	$3\frac{1}{4} \times 4\frac{1}{4}$	\$10 00
2791	2	$\frac{3}{4}$	$4\frac{9}{16}$	3×4	4×5	10 00
2792	3	$\frac{7}{8}$	6	4×5	5×8	10 00
2793	4	$1\frac{1}{4}$	$8\frac{5}{8}$	$6\frac{1}{2} \times 8\frac{1}{2}$	10×12	15 00
2794	5	$1\frac{1}{2}$	12	8×10	11×14	17 00

The Periscope is a wide-angle rectilinear combination, and is most useful for views and architectural subjects that require microscopical definition over a largely extended field. It is admirably adapted to copying, being perfectly rectilinear, and though not intended for instantaneous work, admits sufficient light for drop shutter views. Owing to its simplified construction it is sold for a lower price than any other lens of similar quality.

FOCUSING GLASSES.



No. 2807



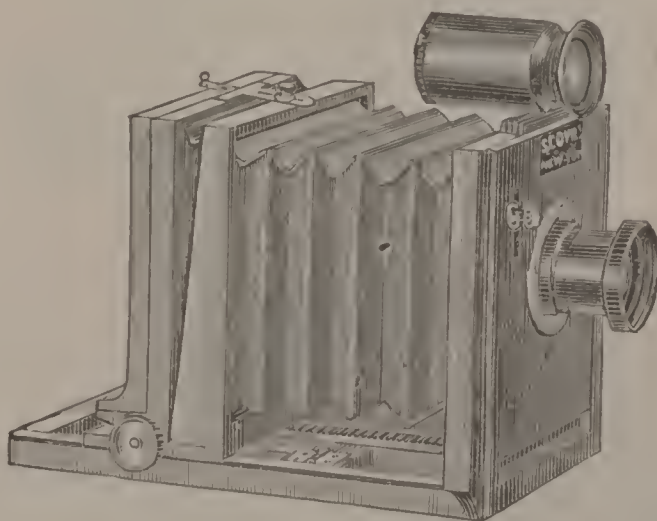
No. 2808.

2807. WALMSLEY'S FOCUSING GLASS, with Screw Adjustment,	.	.	\$1 00
2808. DARLOT'S " " " Sliding "	.	.	3 00

A Focusing Glass is an exceedingly useful accessory to the camera for field use, especially when very accurate focusing of buildings is required. It is *indispensable* for dimly lighted interiors and photo-micrography. Being placed against the back of the ground glass screen on the camera and the focus adjusted by means of the screw or sliding tube, all the details of the view are seen most sharply defined when the proper focus of the lens on camera is obtained. In the Darlot form a clamping screw retains the lens in adjustment, whilst the solid tube in front shuts off all extraneous light. The Walmsley form answers very well, however, whilst it is much less expensive. It is also an exceedingly useful magnifier for all purposes requiring only a low power.

VIEW ADJUSTER.

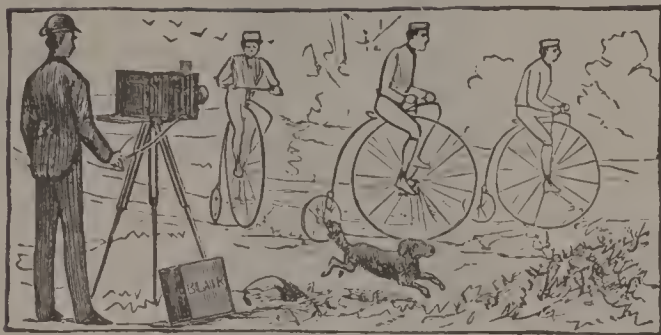
In taking pictures of moving objects it is highly important that the exposure should be made at the exact moment when the object occupies the proper position upon the plate. This is best accomplished by the employment of a *view adjuster*, as below



No. 2818 ATTACHED TO CAMERA.

2818. WALMSLEY'S VIEW ADJUSTER, with Attachment for Camera,	.	\$2 00
2819. " REVERSIBLE VIEW ADJUSTER, with Attachment,	.	3 50

DROP SHUTTERS.



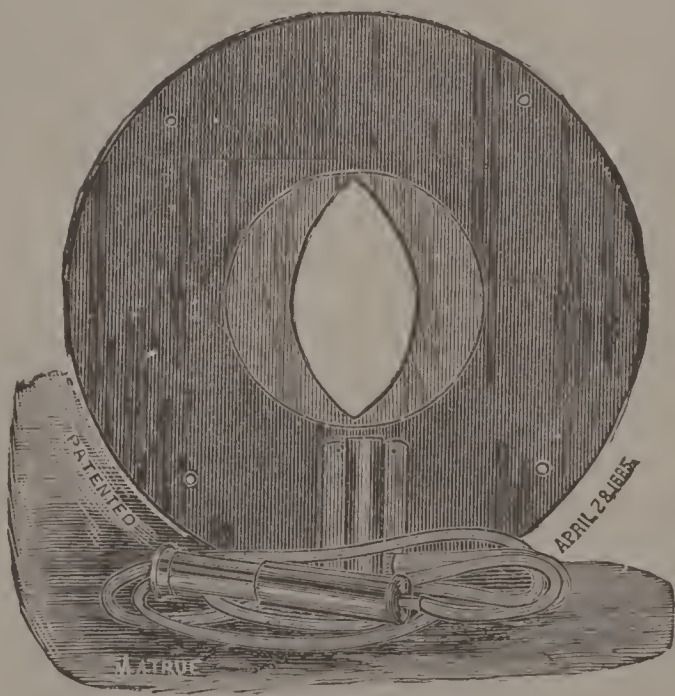
AN INSTANTANEOUS SHOT.



ANOTHER INSTANTANEOUS SHOT.

No.		PRICE.
2809	WALMSLEY'S DROP SHUTTER, with Trigger Escapement,	\$1 50
2810.	“ “ “ “ Pneumatic “	4 00
2811.	WALMSLEY'S PHANTOM DROP SHUTTER COMPLETE,	5 00
	For Lenses 2 inches diameter and under.	
2812.	WALMSLEY'S PHANTOM DROP SHUTTER COMPLETE,	7 50
	For Lenses more than 2 inches in diameter.	
2813.	WALMSLEY'S INSTANTOGRAPH SHUTTER, for Lenses to 5x8,	9 50
2814.	“ “ “ for larger sizes,	13 50 to 15 00

THE PACKARD SHUTTER.



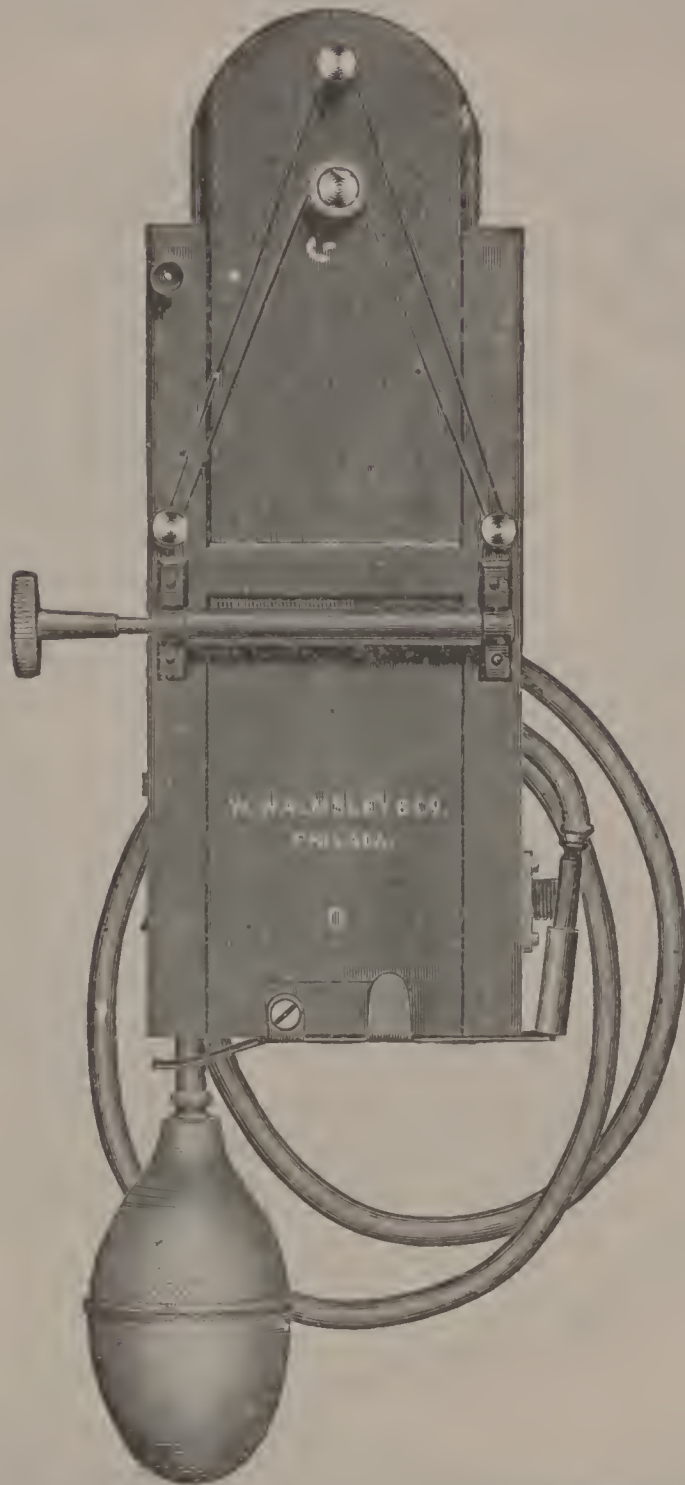
No. 2814*.

The most simply constructed and easily operated of any in use. Easily adjusted ; no jarring the camera or fanning dust, and for durability it challenges comparison. By a new device in the Bulb, the Shutter is made to remain open for focusing and can be readily closed by a simple pressure.

The most flattering proof of its superiority is the daily increasing demand and the universal approval of Photographers who have used it.

2814*.	THE PACKARD SHUTTER. Any Size,	\$4 00
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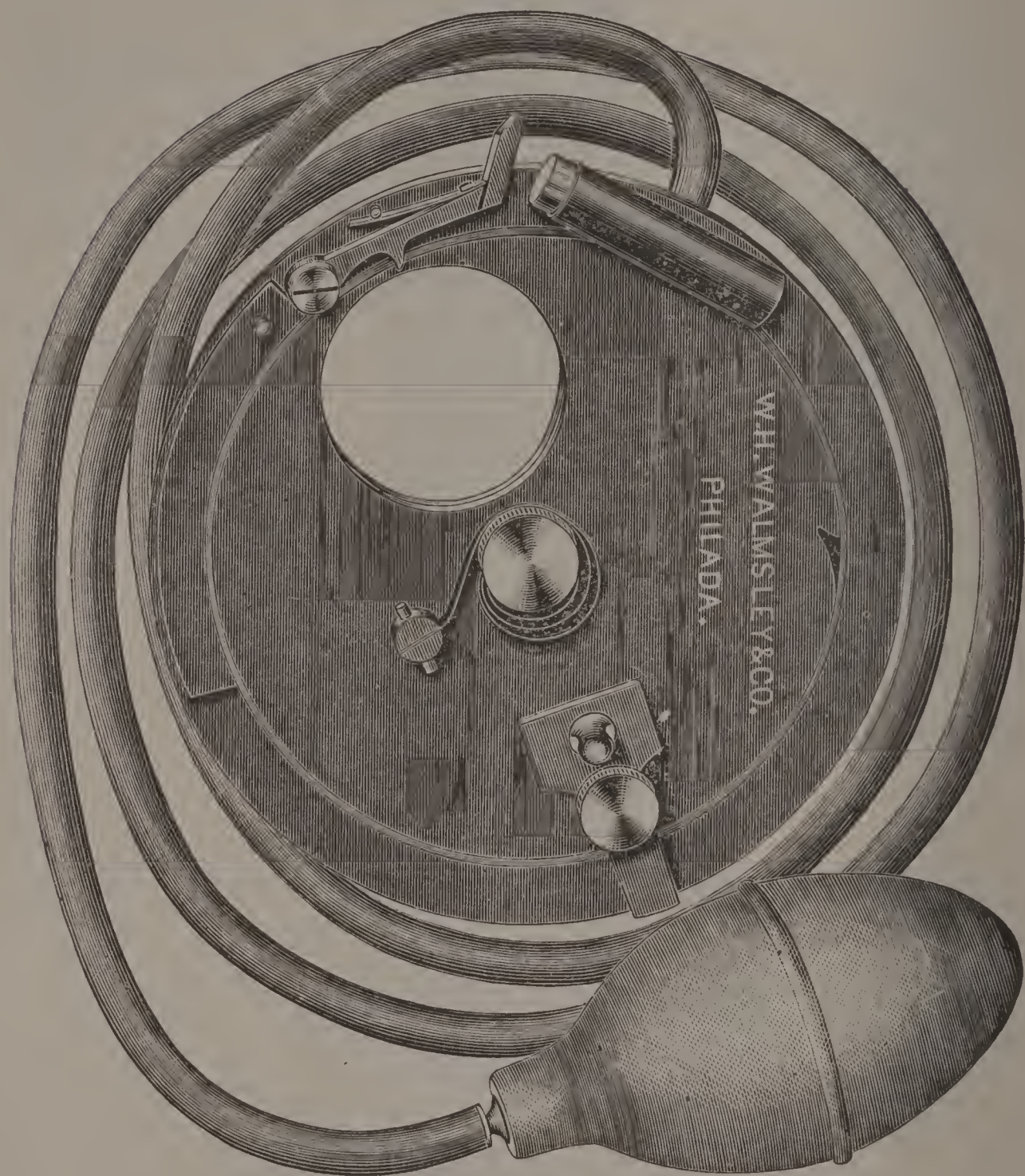
THE PHANTOM DROP SHUTTER.



No. 2811. ONE-HALF ACTUAL SIZE.

The Phantom Shutter (devised in England, but greatly improved and now manufactured by ourselves) is confidently recommended as being the most generally useful of any in the market. It combines the functions of an ordinary exposing shutter of the highest efficiency with those of the instantaneous drop. For the latter purpose any desired rate of speed may be obtained by increasing the number or tension of the rubber bands, the release being effected by a pneumatic attachment. For the former (as well as for focusing), the drop shutter is raised and secured by a pin (shown in the illustration), and the exposure made by raising the flap with the large milled head, thus doing away with the troublesome cap to the lens. In either case the flap acts as a sky-shade, giving double exposure to the foreground. Being made of hard rubber, the Phantom Shutter is extremely light, and can readily be carried in an ordinary pocket.

THE INSTANTOGRAPH SHUTTER.

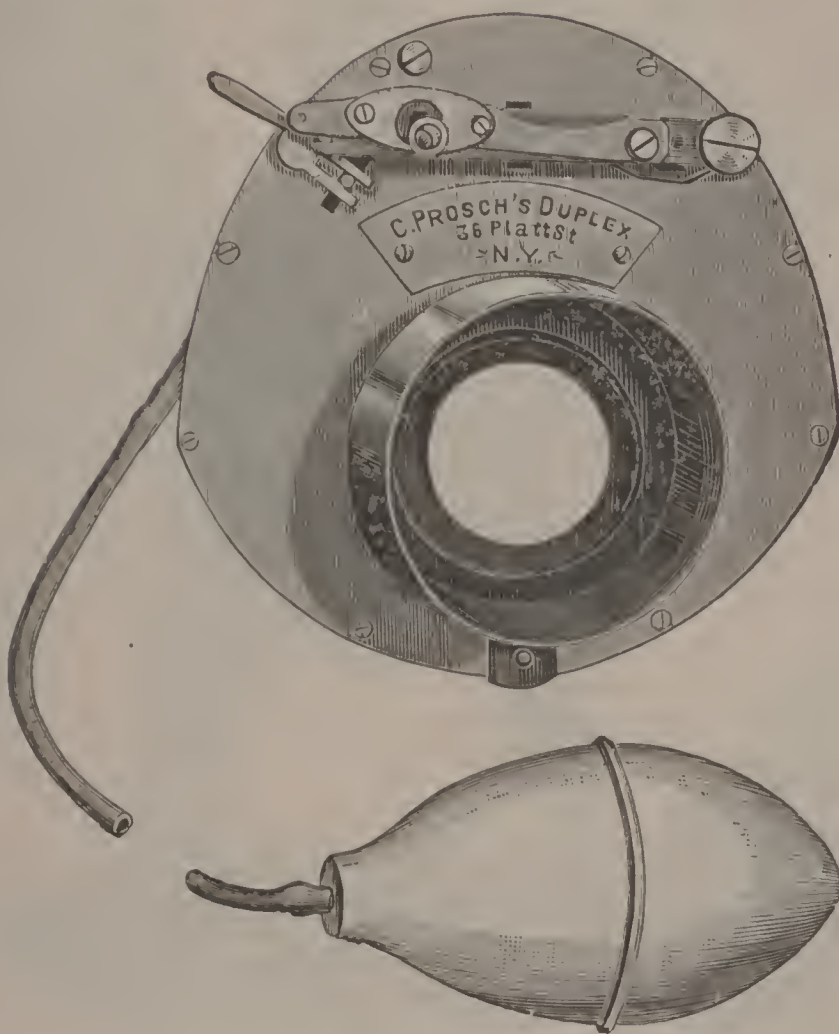


No. 2813. ACTUAL SIZE.

The Instantograph Shutter is altogether the smallest and most portable of any that has heretofore been devised, being easily carried in an ordinary pocket. It can be set at different rates of speed, from quite a slow motion to one rapid enough to catch a horse at full gallop. By a recent improvement, it is arranged for time exposures varying from a fraction of a second to a full minute or more if desired.

It is a modification of an improvement upon an English Shutter of the same name, and we confidently recommend it to our friends and patrons as being superior to any other now in use for rapid work. It can readily be adapted to any lens in the market, though specially made to fit the screws of the Beck and Dallmeyer lenses.

PROSCH'S "DUPLEX" SHUTTERS.



No. 2817.

2817. DUPLEX PHOTOGRAPHIC SHUTTER, according to size, . \$12 00 to \$20 00

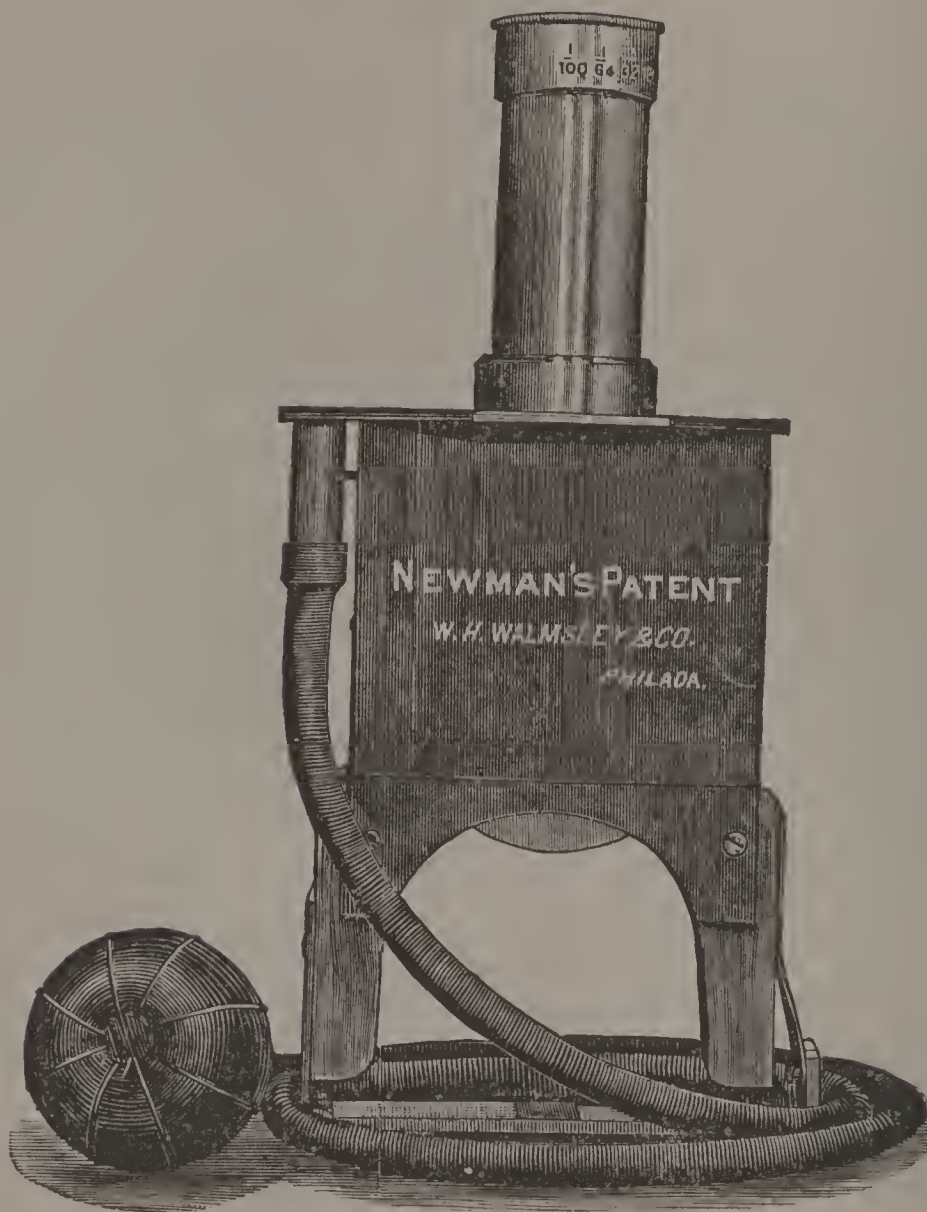
With this Shutter exposures can be made of any desired duration. It is equal to any requirement for the most rapid work, and as a time Shutter, exposures can be made as quick as two pulsations can be given to air bulb (about one-tenth of a second) or of minutes duration.

"Duplex" Shutters work perfectly with even the very largest lenses, up to their full capacity; and several lenses can be used with the same Shutter. The Shutter gives a full opening; but yet by the peculiar opening in the exposure slides, any part of the picture can be favored, with more or less illumination, by turning the Shutter, sometimes even inverting it.

These Shutters are virtually made to order, as each purchaser gets one accurately fitted to his lens, and of a size (neither too large nor too small) suited to work to the best advantage.

A pretty clear idea of the construction and operation of the "Duplex" Shutter can be obtained from a study of the above illustration.

NEWMAN'S PATENT SHUTTER.



Nos. 2818-2819.

No.		PRICE.
2818.	NEWMAN'S PATENT SHUTTER, for lenses to 5x8.	\$13 50
2819.	" " " 6½x8½-8x10,	15 00

Newman's Patent Shutter, now introduced in this country for the first time, has been a great favorite in England, where it is universally regarded as being the most perfect of any yet made. Its speed is entirely controlled by pneumatic action, and it works automatically at any desired rate, from one second to the one-hundredth of a second, the time being accurately adjusted by simply rotating the milled head on top of tube bearing a graduated scale. Time exposures of any length may be made at will of the operator—a simple pressure upon the bulb closing the Shutter when desired. The Shutter works in the diaphragm slot, or, still better, in one specially cut, thus permitting the use of diaphragms. With the Iris Diaphragm of Beck's Autograph Lens, its operation is perfect. It is thoroughly well made, light and compact, readily adjusted or removed; in short, it is the realization of that long-felt want—a perfect exposing Shutter for all purposes.

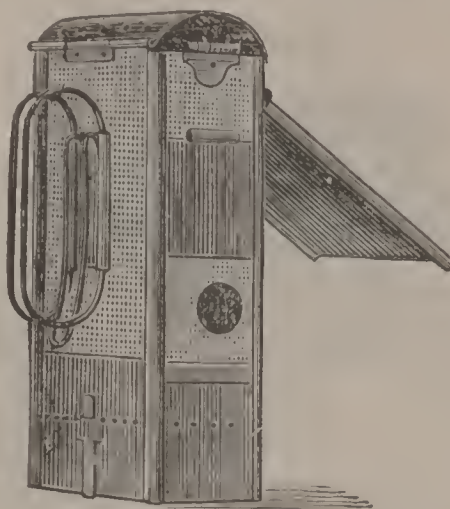
APPARATUS FOR DEVELOPING NEGATIVES.

DARK-ROOM LANTERNS.

The importance of a *safe light*, combined with a sufficiency thereof, to enable the operator to see clearly in the dark room, cannot be overestimated. These qualities are combined in an eminent degree in the Lanterns described below.

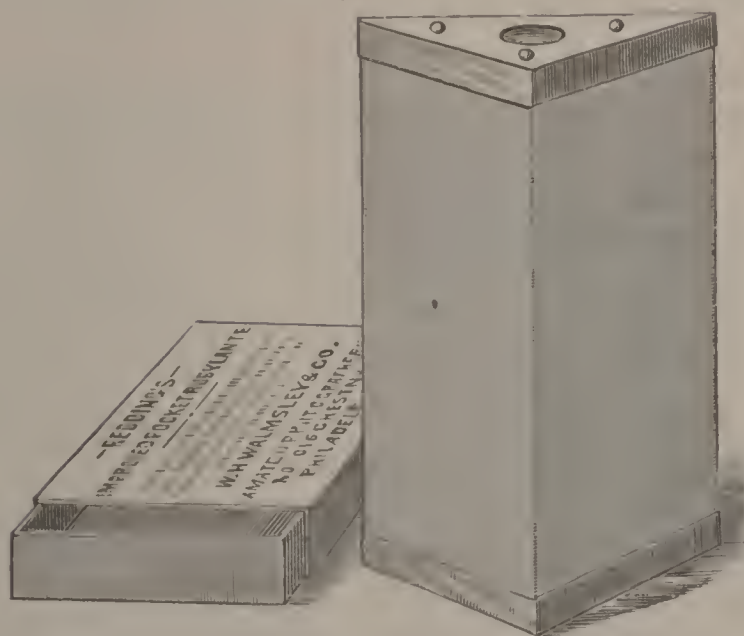


No. 2820. Front.



No. 2820. Back.

No.		PRICE,
2820.	W. I. A. PORTABLE RUBY LANTERN, for traveling,	\$0 60



No. 2821.



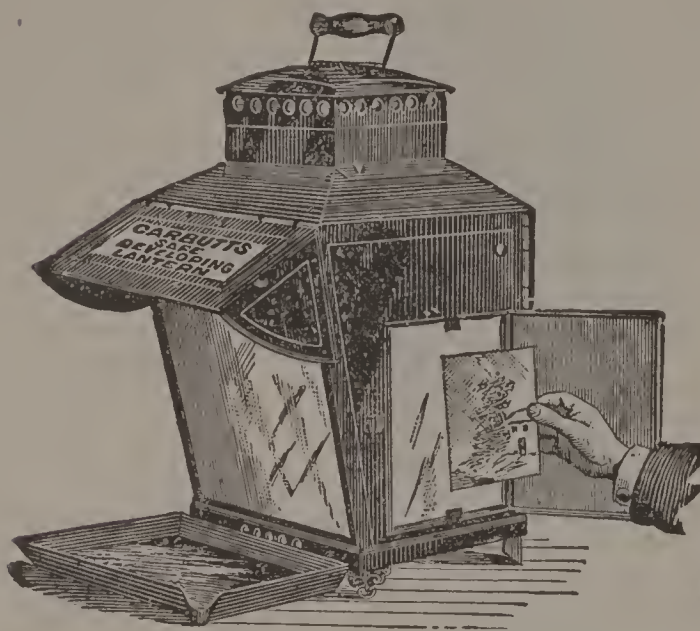
No. 2822.

2821.	WALMSLEY'S (REDDING'S) DRY PLATE POCKET LANTERN,	90
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This is the most perfect, compact, and portable lantern ever produced. It can readily be carried in the pocket, affords a full, safe light, and costs but a trifle. A paraffine night candle is furnished with each, and the Lantern is folded into a small, flat box.

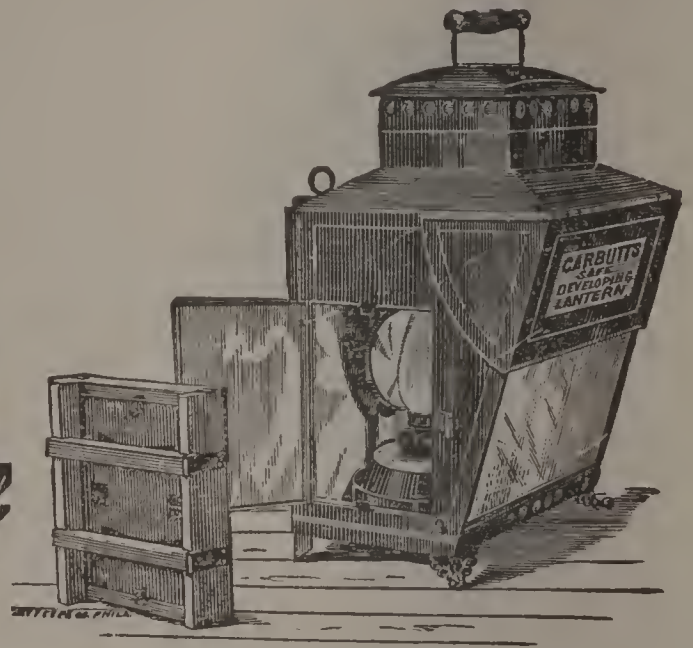
No.	PRICE.
2822. SCOVILL'S NON-ACTINIC DARK-ROOM LANTERN,	\$2 00

This Lantern marks another and decided step in advance, dispensing with the old and baleful ruby light and substituting therefor a clear, bright orange, very pleasant to work with and abundant in amount, whilst entirely safe with the most sensitive of plates. The Lantern is thoroughly well made and entirely impervious to the escape of any white light.



No. 2823.

Lantern arranged for developing, and after fixing, examining negatives by opal light.



No. 2823.

Lantern arranged for making positives by contact.

2823. CARBUTT'S MULTUM IN PARVO LANTERN,	\$6 00
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This Lantern, though somewhat costly, is so manifestly excellent and can be put to so many uses, that no one will regret the first outlay after using it a short time.

The following are some of the advantages possessed: It is simple and easy to manage, nothing complicated, yet has three separate and distinct forms of light. It is adapted to the use of either oil or gas; is about nine inches square by fourteen high, with eight by ten deep orange cathedral-glass, coated with ruby colored glass substitute in front, giving a perfect, safe, and pleasant orange-red light. Each Lantern is provided with a coal-oil lamp, with improved patent burner and silvered reflector, which may be revolved in any direction, and operated from the outside. By removing the revolving lamp bed, a hole will be found through which a gas burner can be introduced.

It can be used for seven or more different operations in photography, several of which have never been combined in any one lantern, to wit:

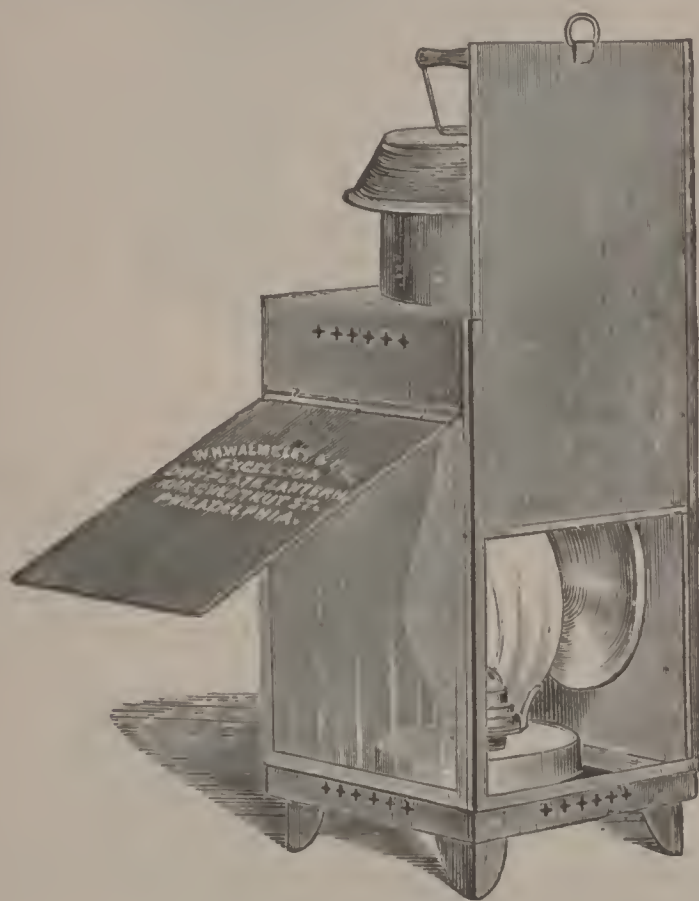
1. A safe light for the preparation of gelatino-bromide emulsion.
2. A safe light for the coating of gelatino-bromide plates.
3. A safe light for developing the most sensitive plates; whilst, for preparing developer or doing other work, the room can be instantly flooded with white light and as quickly changed to the orange-red, giving abundance of light by which to develop the largest sized plates used. The adjustable hood effectually shields the eyes from the glare of the light, a matter of the greatest importance to those having a large number of negatives to develop.
4. An opal light by which to examine negatives or positives after fixing, enabling the operator to judge of their quality, thereby avoiding the necessity of leaving the dark-room in search of white light.

5. A clear, transparent light for making positives on glass (gelatino-bromide).

6. The making of enlarged negatives from gelatine positives, placed in front of opal light.

7. By the adjustment of condensers and holder for slides and objectives in front of the clear light, a very effective Magic Lantern is formed.

WALMSLEY'S EXCELSIOR LANTERN



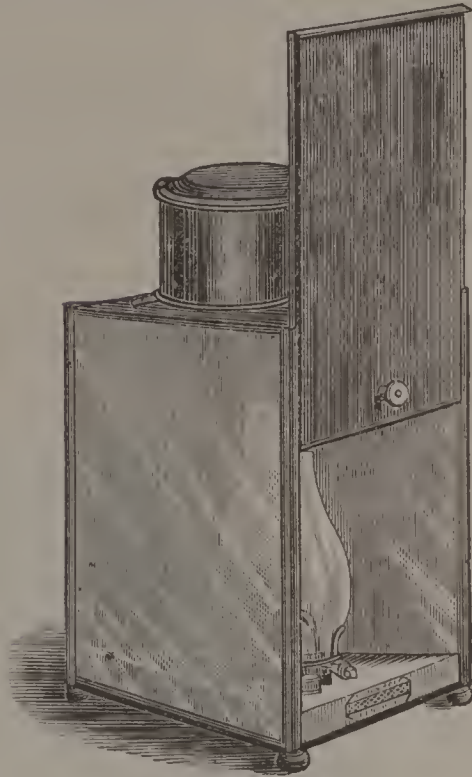
No. 2824.

No.	PRICE.
2824. WALMSLEY'S EXCELSIOR DARK ROOM LANTERN,	\$3 50

After a long series of experiments we have succeeded in producing a Dark Room Lantern, combining all the most desirable features of Mr. Carbutt's most excellent one with such a reduced cost as must recommend it to very many who may not care to invest six dollars in it.

Our aim has been to construct a substantial Lantern so arranged as to afford ample but safe light, thorough ventilation, and ease of manipulation. The case is seven inches square by twelve inches high, surmounted by a light-tight ventilator of three inches more, affording a splendid draught to the lamp beneath. This lamp is a broad-based one, of large oil-holding capacity and wide, flat wick. The chimney is of an ordinary pattern, procurable in any lamp or country store. The combustion is perfect, entirely free from smoke or smell, and the light ample for all purposes; developing, or the making of Lantern slides and Transparencies, for which latter purpose the opening of its sliding door in the side will permit the outflow of a volume of white light from either the edge of the flame or its flat side, as the whole lamp revolves on its base. The eyes are protected whilst developing by the flap or broad shutter shown in the illustration. The Lantern is so large and the spaces for ingress and egress of air so ample that it cannot become overheated.

THE PARAGON LANTERN.

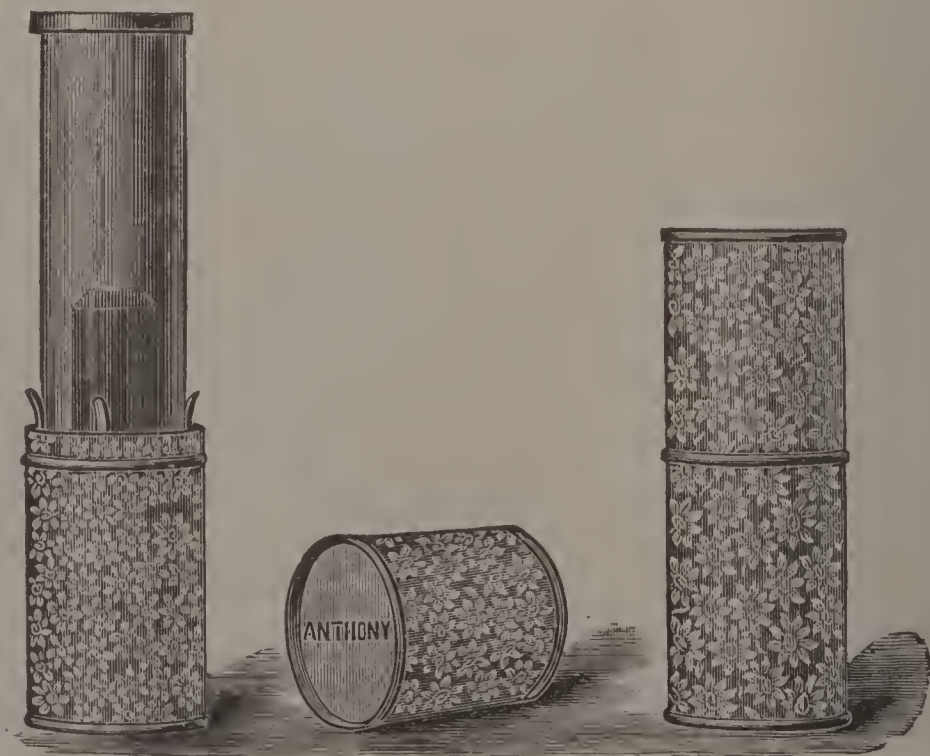


No. 2824*.

The Paragon Lantern is of English make, triangular in shape, ten inches in extreme height, and six inches wide on each face. The sides are glazed with the best ruby glass, giving ample but safe light. The flame of the lamp can be regulated from the outside by the button shown in the illustration. If preferred, a candle fed by a spiral spring, which always maintains the flame at a given height, can be substituted for the lamp.

No.		PRICE.
2824*.	THE PARAGON DARK ROOM LANTERN, with Oil Lamp or Candle,	\$3 00
2824**.	“ “ “ with Lamp and Candle, .	3 50

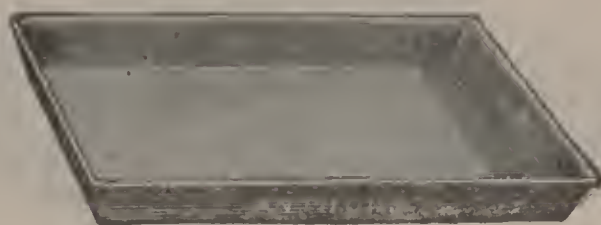
THE TISDELL CANDLE RUBY LANTERN.



No. 2824***.

2824***.	THE TISDELL CANDLE RUBY LANTERN,	\$1 35
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JAPANNED DEVELOPING TRAYS.



Nos. 2825-2833.

2825.	JAPANNED IRON DEVELOPING TRAY,	4½ x 5½,	.	.	.	.	20
2826.	"	"	"	"	5½ x 8½,	.	25
2827.	"	"	"	"	7 x 9,	.	30
2828.	"	"	"	"	9 x 10,	.	40
2829.	"	"	"	"	10 x 12,	.	50
2830.	"	"	"	"	12 x 15,	.	75
2831.	"	"	"	"	15 x 18,	.	1 00
2832.	"	"	"	"	18 x 22,	.	2 00
2833.	"	"	"	"	20 x 24,	.	2 50

EBONITE DEVELOPING TRAYS.



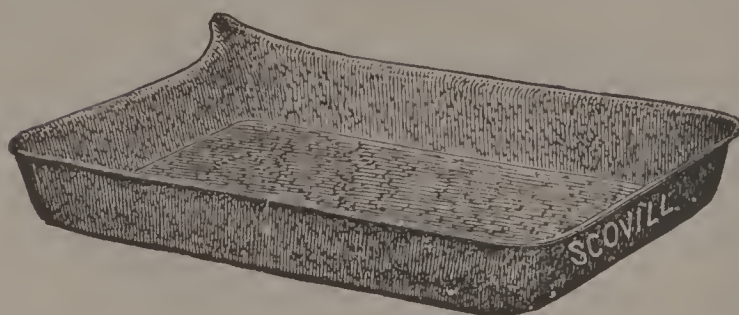
Nos. 2834-2839.

No.							PRICE.
2834.	EBONITE DEVELOPING TRAY,	3½ x 4½,	No. 1,	.	.	.	\$0 25
2835.	"	"	" 4½ x 5½,	No. 2,	.	.	27
2836.	"	"	" 5 x 7,	No. 3,	.	.	40
2837.	"	"	" 5 x 8,	No. 4,	.	.	60
2838.	"	"	" 7 x 9,	No. 5,	.	.	80
2839.	"	"	" 8 x 10,	No. 6,	.	.	1 30
2839*.	"	"	" 10 x 12,	No. 7,	.	.	2 40
2839**.	"	"	" 11 x 14,	No. 8,	.	.	3 20

PORCELAIN DEVELOPING TRAYS.

						Shallow.	Deep.
2834*.	PORCELAIN DEVELOPING TRAY,	5 x 7,	.	.	.	44	62
2835*.	"	"	" 7 x 9,	.	.	66	82
2836*.	"	"	" 8 x 10,	.	.	82	1 00
2837*.	"	"	" 10 x 12,	.	.	1 32	1 66
2838*.	"	"	" 11 x 14,	.	.	2 16	2 64

AGATE-IRON LIPPED TRAYS.



Nos. 2840-2845.

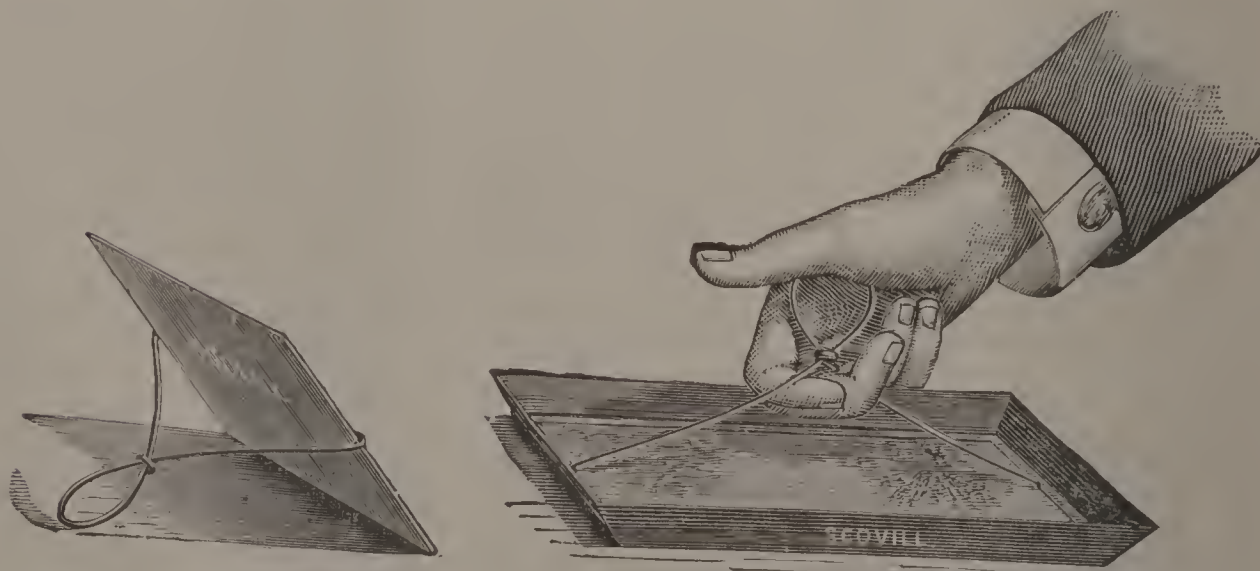
								Shallow.	Deep.
2840.	AGATE-IRON DEVELOPING TRAY,	5x 7,	.	.	.	.	.	80	1 00
2841.	"	"	"	7x 9,	.	.	.	1 00	1 25
2842.	"	"	"	8x10,	.	.	.	1 25	1 60
2843.	"	"	"	10x12,	.	.	.	2 00	2 25
2844.	"	"	"	11x14,	.	.	.	3 00	3 37
2845.	"	"	"	14x17,	.	.	.	5 00	6 00
2845*.	"	"	"	15x19,	.	.	.	7 00	8 00

TRAYS FOR BROMIDE PAPER.

These trays are made of wood lined with rubber cloth, without joint and cemented. They will not give rust marks in developing, and are so light as to be easily handled. The 26x32 size weighs only 7½ pounds.

No.								PRICE.
2846.	NEW BROMIDE PAPER DEVELOPING TRAY,	19x23,	.	.	.	.	.	\$3 50
2847.	"	"	"	21x25,	.	.	.	4 00
2848.	"	"	"	23x28,	.	.	.	4 50
2849.	"	"	"	26x32,	.	.	.	5 00
2849*.	"	"	"	32x42,	.	.	.	7 50

THE RUSSELL NEGATIVE CLASP.



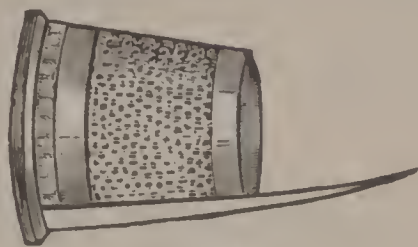
No. 2851.

No. 2851.

2851. THE RUSSELL NEGATIVE CLASP, 15

There is no need (when using the clasp) of putting the finger in the developer, or of touching a plate until after it has been developed and dried. Adjustable for all sizes from 3½x4½ to 8x10.

THE EFFICIENT PLATE-LIFTER.



No. 2850.

No	PRICE.
2850. THE EFFICIENT PLATE-LIFTER,	\$0 15

This little piece of apparatus is like an ordinary thimble, with a pointed piece of metal soldered securely to it, as shown in the illustration. Slipped on to the end of the finger, it is a most "efficient" aid in lifting the negative from the tray for examination during development.

FERROUS-OXALATE DEVELOPING BOTTLE.

2852.	FERROUS-OXALATE DEVELOPING BOTTLE.	Pint,	.	.	.	.	60
2853.	“ “ “	Quart,	.	.	.	.	75
2854.	“ “ “	Half-gallon,	.	.	.	.	1 00

Full directions for use on each bottle.

CAMEL'S-HAIR DUSTERS.



Nos. 2855-2860.

2855.	CAMEL'S-HAIR DUSTER,	$\frac{1}{2}$ -inch wide,	.	.	.	.	.	.	.	18
2856.	"	"	1	"	.	.	.	.	.	22
2857.	"	"	1 $\frac{1}{4}$	"	.	.	.	.	.	30
2858.	"	"	1 $\frac{1}{2}$	"	.	.	.	.	.	35
2859.	"	"	2	"	.	.	.	.	.	40
2860.	"	"	2 $\frac{1}{2}$	"	.	.	.	.	.	50

These Brushes are exceedingly useful for removing dust from the surface of Sensitized Plates, before placing same in the holders, and air-bells when the developing fluid is poured over the plates in developing tray. Two or three of them should be found in the outfit of every amateur.

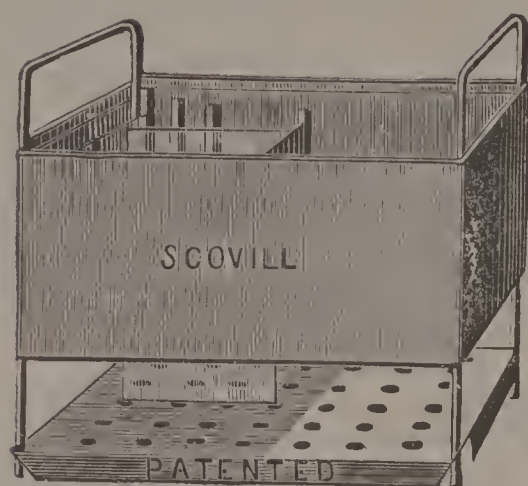
ARTISTS' CUFFS.



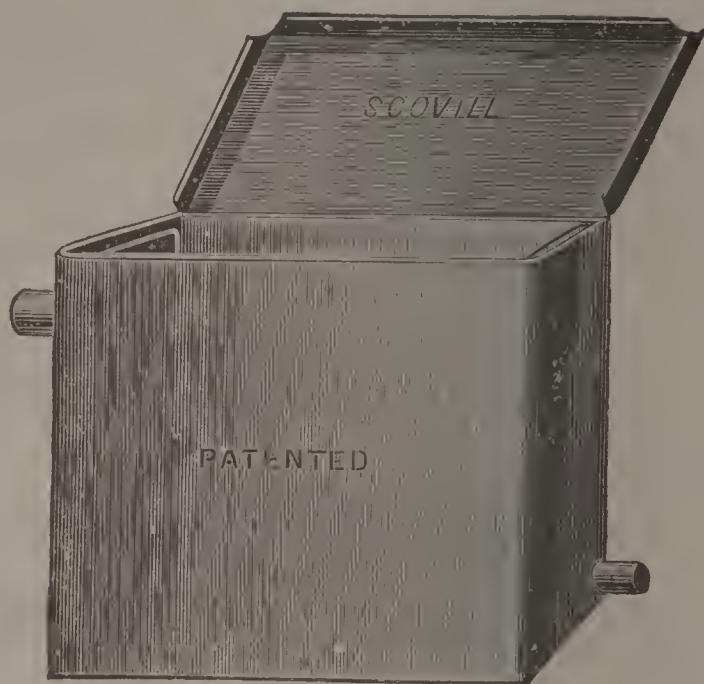
No. 2861.

2861. ARTISTS' CUFFS.	For protecting the sleeves.	Per pair, . . .	60
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NEGATIVE WASHING BOXES.

Guaranteed not to Rust.

Nos. 2866-2873.



Nos. 2866-2873.

2866.	SCOVILL'S	NEW	NEGATIVE	WASHING	BOX,	3½ x 4½,	.	.	.	\$1 60
2867.	"	"	"	"	"	4 x 5,	.	.	.	1 75
2868.	"	"	"	"	"	4½ x 5½,	.	.	.	1 90
2869.	"	"	"	"	"	4½ x 6½,	.	.	.	2 00
2870.	"	"	"	"	"	5 x 7,	.	.	.	2 10
2871.	"	"	"	"	"	5 x 8,	.	.	.	2 15
2872.	"	"	"	"	"	6½ x 8½,	.	.	.	2 25
2873.	"	"	"	"	"	8 x 10,	.	.	.	2 50

It is necessary in the last stage of development to remove from photographic negatives all traces of hyposulphite of soda, and it is not generally convenient to place them where water will flow over their surface a sufficient length of time to accomplish this effectually, without injury to the sensitive film. To watch the plate is to waste time. The flow over it should be with gentle force. This can best be regulated, and a thorough cleansing from hyposulphite of soda of every portion of the negative be assured, by the employment of one of the continuous flow Negative Washing Boxes. Plates are simply slid into the grooves, a guarantee that the film will not be disturbed or marred; a bit of hose is slipped over a tap, and the other end over the spout of the box. If need be, another section of rubber tubing is used to carry off the waste water to an outlet. After this simple preparation the Washing Box is in readiness for service.

The Scovill Negative Washing Boxes are now made as shown in the above illustration, so that plates may be taken out without putting the fingers in the water. The perforated bottom prevents water from passing through the box with too great force, and distributes it so that every plate and every portion thereof is equally washed, and this cannot be done with any other washing box.

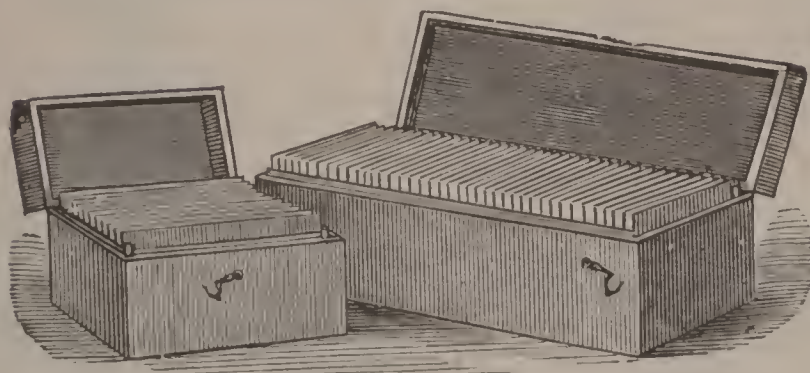
NEGATIVE DRYING RACKS.



No. 2875.

No.	PRICE.
2875. FOLDING DRYING RACK. Will hold any size of plate,	\$0 50

NEGATIVE BOXES.



Nos. 2876-2885.

2876. NEGATIVE BOX, for holding twenty-four plates,	3½ x 4½,	. .	70
2877. " " " " "	4 x 5,	. .	75
2878. " " " " "	4½ x 5½,	. .	75
2879. " " " " "	4½ x 6½,	. .	75
2880. " " " " "	5 x 7,	. .	90
2881. " " " " "	5½ x 7,	. .	95
2882. " " " " "	5 x 8,	. .	95
2883. " " " " "	6½ x 8½,	. .	1 05
2884. " " " " "	8 x 10,	. .	1 20
2885. " " " " "	10 x 12,	. .	2 40

NEGATIVE PRESERVERS.

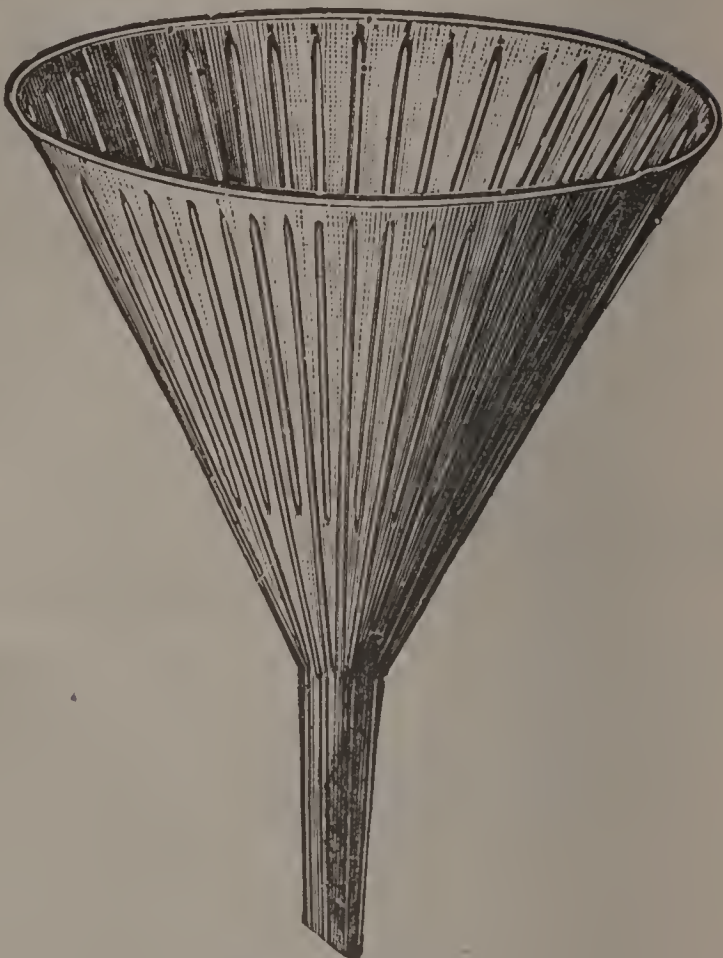
2886. PRESERVERS, for negatives 3½ x 4½, per 100,		\$0 30
2887. " " 4 x 5, "		38
2888. " " 4½ x 5½, "		40
2889. " " 4½ x 6½, "		45
2890. " " 5½ x 7, "		45
2891. " " 5 x 8, "		54
2892. " " 6½ x 8½, "		61
2893. " " 8 x 10, "		76

The Preservers consist of an Envelope made of strong, thick paper, one end open, and having on one side three printed lines for the number, name, and remarks.

GLASS GRADUATES AND FUNNELS.



Nos. 2895-2905.



Nos. 2906-2909.

No.											PRICE.
2895.	GLASS GRADUATE, Minim.,										25
2896.	"	"	1 ounce,								20
2897.	"	"	2 "								25
2898.	"	"	3 "								30
2899.	"	"	4 "								35
2900.	"	"	6 "								45
2901.	"	"	8 "								50
2902.	"	"	12 "								80
2903.	"	"	16 "								1 00
2904.	"	"	24 "								1 00
2905.	"	"	32 "								1 50
2906.	GLASS FUNNEL, FLUTED,	Half-pint,									20
2907.	"	"	Pint,								25
2908.	"	"	Quart,								35
2909.	"	"	Half-gallon,								50
2910.	GLASS FILTER AND FUNNEL COMBINED,	Pint,									50
2911.	"	"	"	"	"	Quart,					65
2912.	"	"	"	"	"	Half-gallon,					1 00

This combination of Funnel and Filter is intended specially for the use of cotton as the filtering medium. The bulb retains the cotton in such a manner as to obviate the difficulty experienced with the ordinary funnel from the cotton becoming compressed too tightly. A glance at the illustration will make its advantage apparent.

FILTERING COTTON.

No.		PRICE.
2913.	FILTERING COTTON, four ounces, in paper box,	25

FILTER PAPER.

2915.	FILTER PAPER, Best Round Gray, No. 15,	6 inch, per 100,	.	25
2916.	“ “ “ “ No. 19,	8 “ “	. .	30
2917.	“ “ “ “ No. 25,	10 “ “	. .	35
2918.	“ “ “ “ No. 33,	13 “ “	. .	40
2920.	“ “ “ “ No. 40,	16 “ “	. .	50
2921.	“ “ “ “ No. 45,	18 “ “	. .	60
2922.	“ “ “ “ No. 50,	20 “ “	. .	75
2923.	“ “ Swedish (Munktel's), per quire,	.		1 00

SCALES AND WEIGHTS.

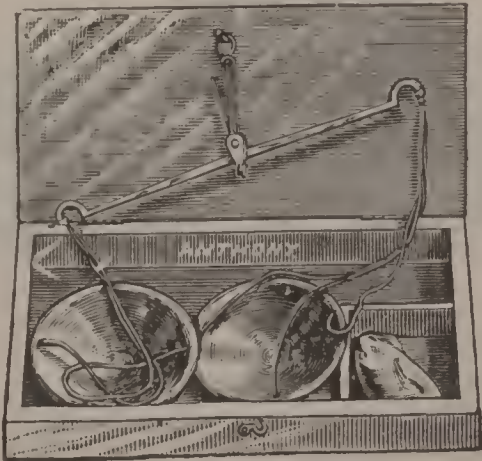


No. 2924, open.

No. 2924, closed.

2924. POCKET PYRO SCALE, in Case, \$1 00

These Scales have a capacity from one-half to twenty grains ; can be carried in the waistcoat pocket ; have no weights to lose, and are always ready for use.



Nos. 2925-2926.

2925.	SCALES AND WEIGHTS, 5-inch beam, drachms and grains,	.	.	65
2926.	“ “ 6 “ “ “ “	.	.	90
In wood or metal cases.				

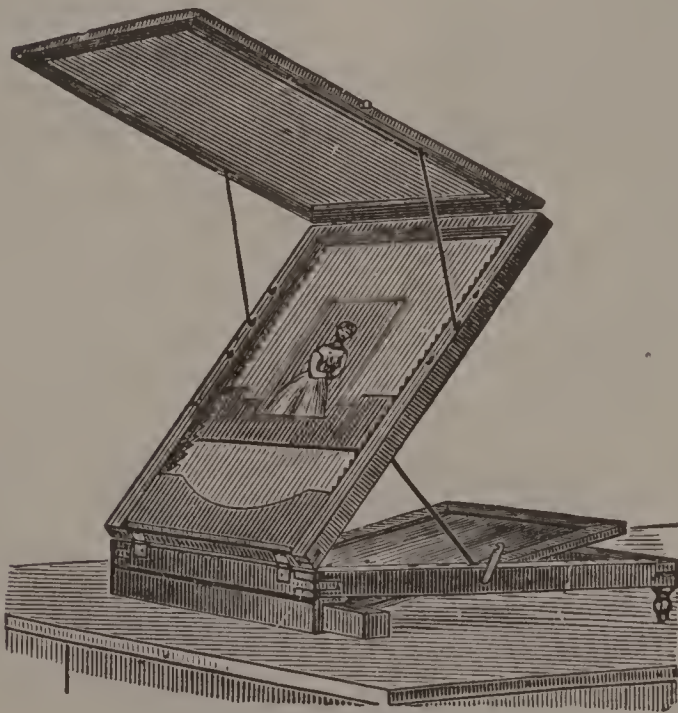


Nos. 2928-2930.

No.								PRICE.
2928.	STANDARD BALANCE,	5½-inch beam,	2-inch pans,	No. 2,	.	.	.	\$4 00
2929.	"	"	7	"	2¼	"	No. 1,	5 50
2930.	"	"	8	"	2¾	"	No. 0,	6 50

These Balances are provided with a full set of Weights and are mounted on a Polished Walnut Case containing a drawer in which the whole apparatus can be packed.

RETOUCHING FRAMES.



No. 2935.

2935.	RETOUCHING FRAME, for 8x10 and under,	.	.	.	.	.	.	\$3 50
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This is a compact and most convenient apparatus for retouching negatives, stopping out spots, etc.

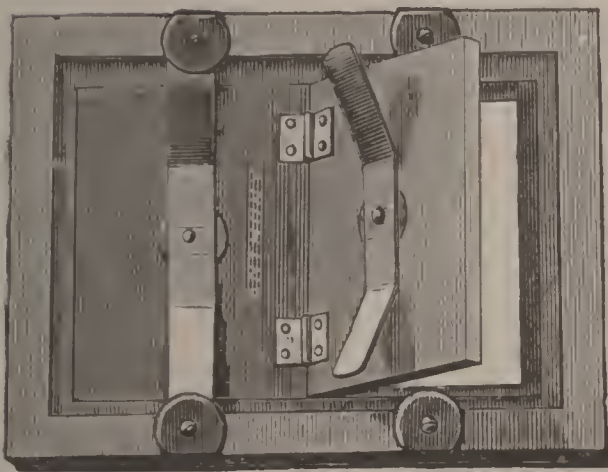
2936.	CROWELL'S METALLIC LEAD, for retouching,	.	.	.	.	.	.	20
2937.	GIHON'S OPAQUE, for stopping out faults,	.	.	.	.	.	.	50

Gihon's Opaque is applied with a brush and is the most perfect material for stopping out light ever made.

The apparatus thus far described is all that is necessary to the production of finished negatives ready for printing from. Many amateurs are content to rest their labors here, and confide their negatives to the professional printer for the production of the finished prints. Much the larger majority, however, prefer to do their own printing, toning, and mounting; which is indeed the only true way of producing amateur work; and for such we now proceed to illustrate and describe apparatus suited to the purpose.

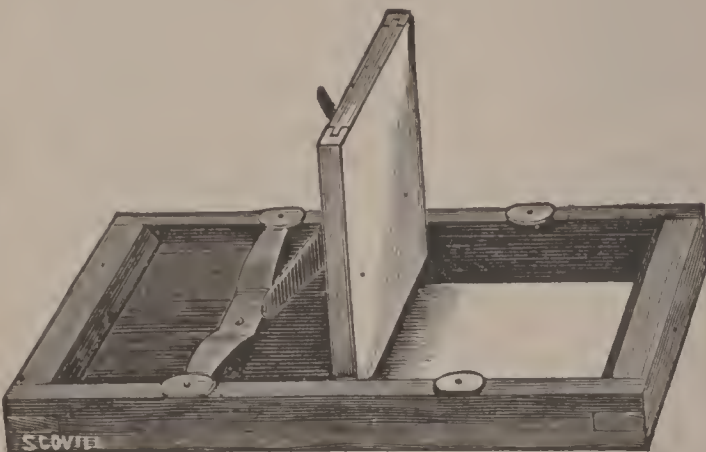
APPARATUS FOR MAKING PRINTS.

PRINTING FRAMES.



Nos. 2950-2959.

FLAT.

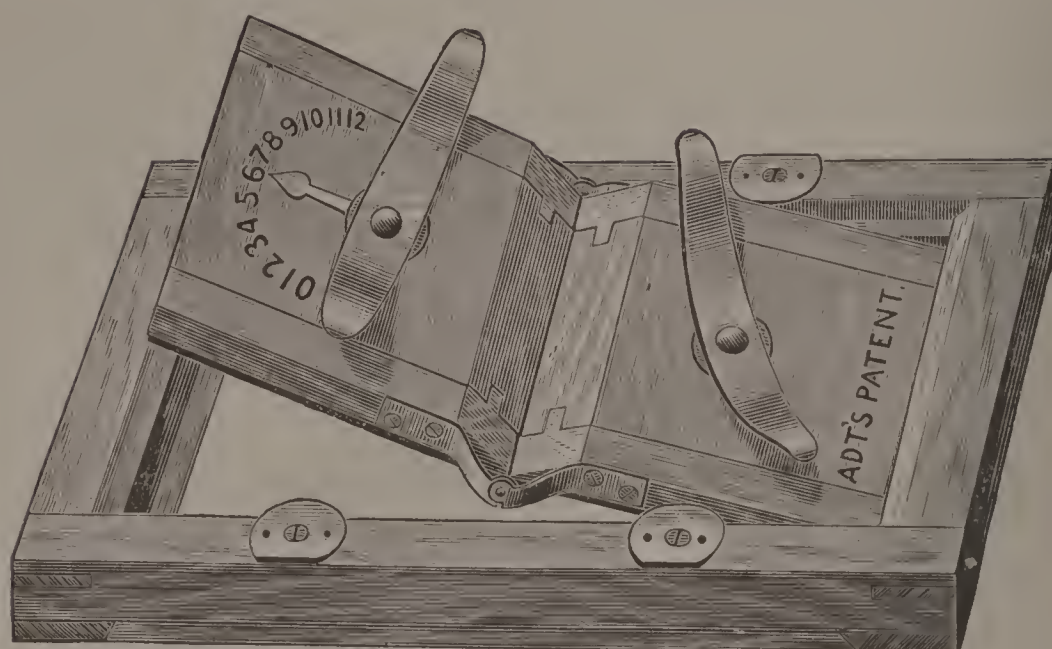


Nos. 2950-2959.

DEEP.

								PRICE.	
No.								Flat.	Deep.
2950.	PRINTING	FRAME.	For Plates	3½ x 4½,	.	.	.	\$0 38	\$0 75
2951.	"	"	"	4 x 5,	.	.	.	38	75
2952.	"	"	"	4½ x 5½,	.	.	.	40	75
2953.	"	"	"	4½ x 6½,	.	.	.	50	85
2954.	"	"	"	5 x 7,	.	.	.	50	1 05
2955.	"	"	"	5½ x 7,	.	.	.	52	1 05
2956.	"	"	"	5 x 8,	.	.	.	52	1 05
2957.	"	"	"	6½ x 8½,	.	.	.	60	1 10
2958.	"	"	"	8 x 10,	.	.	.	75	1 20
2959.	"	"	"	10 x 12,	.	.	.	1 00	1 40

These Frames are made of Cherrywood, with Panelled Back and Brass Springs, in a very superior manner, and are so constructed that a uniform pressure is exerted, thus insuring perfect contact between the positive paper and the negative plate. The backs are hinged in the middle, so that the progress of the printing may be watched without danger of shifting the paper. The deep frames are specially adapted to the making of transparencies by contact printing.



Nos. 2950*-2960.

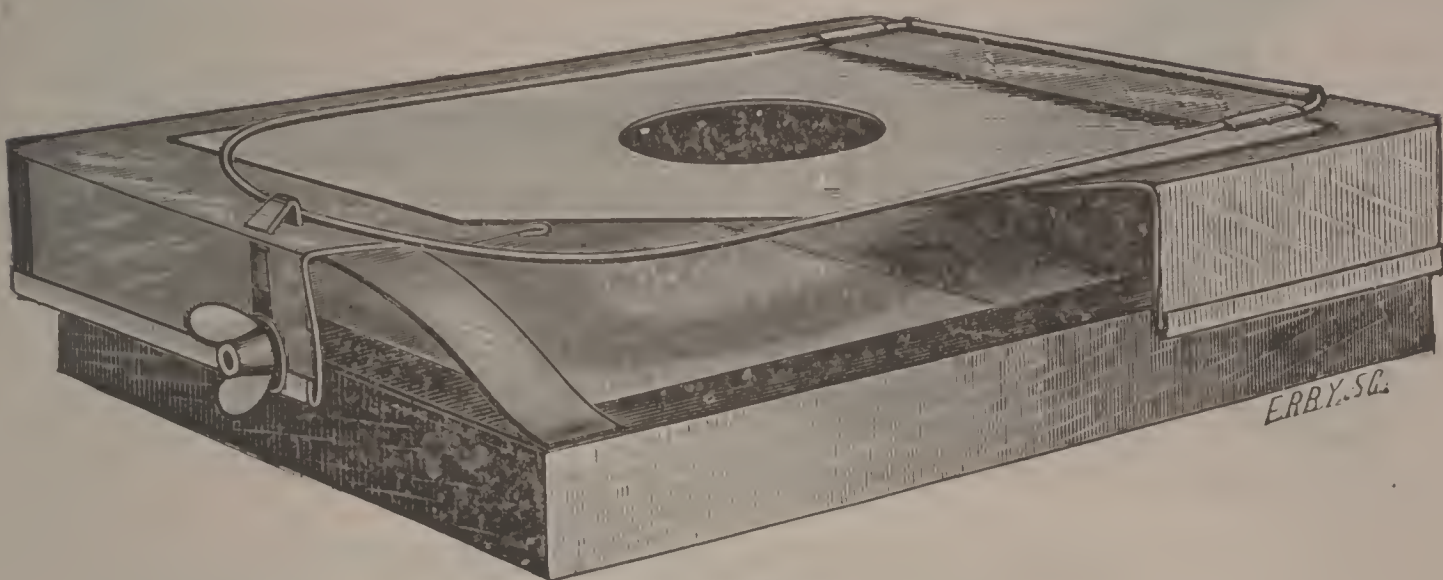
No.									PRICE.
2950*.	ADT'S PATENT PRINTING FRAME,	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$,	.	.	.	.	.	.	\$0 50
2951*.	"	" 4 x 5,	.	.	.	.	.	.	50
2952*.	"	" 4 $\frac{1}{4}$ x 5 $\frac{1}{2}$,	.	.	.	.	.	.	50
2953*.	"	" 4 $\frac{1}{4}$ x 6 $\frac{1}{2}$,	.	.	.	.	.	.	60
2954*.	"	" 5 x 7,	.	.	.	.	.	.	65
2955*.	"	" 5 x 8,	.	.	.	.	.	.	65
2956*.	"	" 6 $\frac{1}{2}$ x 8 $\frac{1}{2}$,	.	.	.	.	.	.	75
2957*.	"	" 8 x 10,	.	.	.	.	.	.	85
2958*.	"	" 10 x 12,	.	.	.	.	.	.	1 15
2959*.	"	" 11 x 14,	.	.	.	.	.	.	2 15
2960.	"	" 14 x 17,	.	.	.	.	.	.	2 80

The Adt Patent Printing Frame is constructed on new and scientific principles. As will be seen by a glance at the cut, the adjacent edges of the parts of the back-board are beveled outward, and the hinges placed on the sides with their axes on a line with the surface. This construction permits the attachment to the face of the back-board of a HEAVY, CONTINUOUS, ELASTIC FELT PAD, manufactured especially for this particular purpose. There is no danger of cracking the albumen paper while inspecting the print, there being no sharp edge or corner at the joint in the back-board. Another valuable feature is ADT'S PATENT TALLY. The pointer or index is pivoted on the rivet which holds the spring to the back-board. The pressure of the spring firmly holds the pointer in place during the process of printing, so that there is absolutely no danger of moving it even by a violent jar. The Frames are made to open crossways in centre, two-thirds, and lengthways. The springs are riveted, not screwed, to the back-board, with large brass washers between them.

FELT PRINTING-FRAME PADS.

No.									PRICE.
2961.	FELT PADS, FOR PRINTING FRAMES,	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$,	per dozen,	.	.	.	.	.	\$0 35
2962.	"	" 4 x 5 $\frac{1}{2}$,	"	.	.	.	.	.	40
2963.	"	" 4 $\frac{1}{4}$ x 5 $\frac{1}{2}$,	"	.	.	.	.	.	45
2964.	"	" 4 $\frac{1}{4}$ x 6 $\frac{1}{2}$,	"	.	.	.	.	.	60
2965.	"	" 5 x 7,	"	.	.	.	.	.	70
2966.	"	" 5 x 8,	"	.	.	.	.	.	80
2967.	"	" 6 $\frac{1}{2}$ x 8 $\frac{1}{2}$,	"	.	.	.	.	.	1 08
2968.	"	" 8 x 10,	"	.	.	.	.	.	1 75
2969.	"	" 10 x 12,	"	.	.	.	.	.	2 40
2969*.	"	" 11 x 14,	"	.	.	.	.	.	3 00

SCOTT'S ADJUSTABLE VIGNETTER AND PLAIN PRINTER.



Nos. 2970-2979.

No.					PRICE.
2970.	SCOTT'S ADJUSTABLE VIGNETTER.	For Frame	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$,	. . .	\$0 50
2971.	"	"	"	4 x 5, . . .	60
2972.	"	"	"	4 $\frac{1}{4}$ x 5 $\frac{1}{2}$, . . .	60
2973.	"	"	"	4 $\frac{1}{4}$ x 6 $\frac{1}{2}$, . . .	65
2974.	"	"	"	5 x 7, . . .	70
2975.	"	"	"	5 x 8, . . .	70
2976.	"	"	"	5 $\frac{1}{2}$ x 7, . . .	70
2977.	"	"	"	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$, . . .	75
2978.	"	"	"	8 x 10, . . .	85
2979.	"	"	"	10 x 12, . . .	1 00

The Scott Adjustable Vignetter is easily attached to any ordinary printing frame, and when once in position need not be removed, as the square opening is sufficiently large to print to the full capacity of the frame. It is readily adjusted to any desired position, and is firmly held with thumb screws. The frame is of tin, with brass springs beneath to raise the vignetter to proper position, whilst a clamping wire holds tightly either tissue paper, cut-out, or both.

WEYMOUTH'S VIGNETTE PAPERS.

Nineteen sizes are now made, suiting all dimensions of pictures from a small *carte* figure to Victorias, cabinets, whole size, etc. They are printed in black for ordinary negatives, yellow bronze for thin negatives, and red bronze for still weaker ones.

2945.	In envelopes, containing one each, Nos. 1 to 15,		\$1 00
2946.	Nos. 1, 2, 3, 4, and 5, for <i>cartes</i> , per dozen,		50
2947.	Nos. 6, 7, 11, 12, and 13, for large <i>cartes</i> and Victorias, per dozen,		75
2948.	Nos. 8, 9, 10, 14, 15, and 15 $\frac{1}{2}$, for cabinets and 4-4 size, per dozen,		1 00
2949.	Nos. 16, 17, and 18, for cabinet and half size, per dozen,		1 25



DEVOE'S PRINTING EASEL.

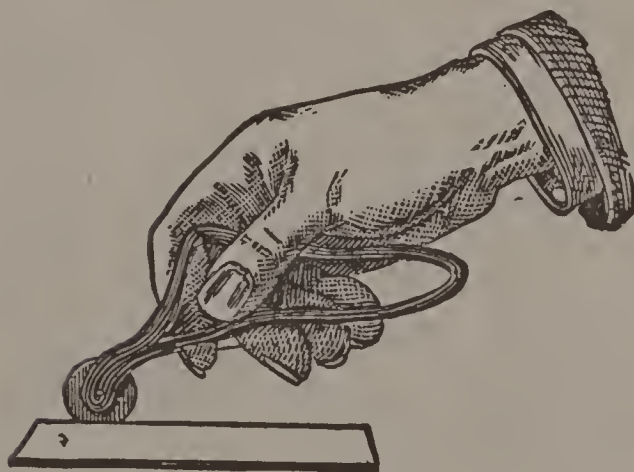
These Easels hold the printing frame at any desired angle, keeping the Negative square to the sun, and insuring symmetrical vignettes.

Their size is suited to Printing frames, from $3\frac{1}{4} \times 4\frac{1}{4}$ to 10×12 .

2979*. DEVOE'S PRINTING EASEL,

25

ROBINSON'S PHOTOGRAPH TRIMMERS.



No. 2980.



No. 2981.

2980. ROBINSON'S STRAIGHT CUT TRIMMER,

50

2981. ROBINSON'S REVOLVING TRIMMER, with guide,

1 00

Robinson's Photograph Trimmer does the work much more expeditiously and elegantly than a knife. It does not cut but pinches off the waste paper, and leaves the print with a neatly beveled edge, which facilitates adherence to the mount. For ovals, circles, and rounded corners it is indispensable.

ROBINSON'S GUIDES.

These Guides are made of sheet-iron for use with the Revolving Trimmer No. 2981. They may be had round, oval, square, or round-cornered, as desired, and of sizes to suit any of Collins' Card Mounts. Price, ten cents per inch the longest way of the aperture.

GLASS FORMS.

No.										PRICE.
2982.	GLASS FORM OR GUIDE,			Carte de Visite,	.	.	.	.	.	\$0 35
2982*.	"	"	"	3½ x 4½	.	.	.	.	.	40
2983.	"	"	"	4 x 5	.	.	.	.	.	50
2983*.	"	"	"	4½ x 5½	.	.	.	.	.	55
2984.	"	"	"	Cabinet,	.	.	.	.	.	60
2984*.	"	"	"	5 x 7	.	.	.	.	.	65
2985.	"	"	"	5 x 8	.	.	.	.	.	75
2985*.	"	"	"	6½ x 8½	.	.	.	.	.	1 00
2985**.	"	"	"	8 x 10	.	.	.	.	.	1 50

These Forms are intended for use with Robinson's Straight Trimmer, No. 2980. They are of plate glass, with beveled edges.

ENTREKIN'S AMERICAN ROTARY BURNISHER.



Nos. 2986-2989.

2986.	ENTREKIN'S ROTARY BURNISHER,	10-inch roll,	.	.	.	.	\$18 00
2987.	"	"	15	"	"	.	25 00
2988.	"	"	20	"	"	.	35 00
2989.	"	"	25	"	"	.	45 00

This Burnisher has the One Wheel, Quick Acting, Centre Adjustment which is a mechanical device for securing uniform and positive pressure, and giving even and perfect adjustment the whole length of the roll, with one motion. One of the greatest advantages it has over other Rotary Burnishers is a mechanical device to readjust the rolls in case of uneven wear of the journals and journal bearings, by the lock-nut and set-screw placed over the wedges at each end of the roll, thus allowing perfect adjustment, and which can be maintained at all times by simply loosening up the lock-nut, and adjusting the roll with the set-screw, and tightening the lock-nut. This is only to be done when the adjustment has become impaired by long and constant use. A two-end wrench accompanies each machine for this purpose.

CARD MOUNTS.

PLAIN CARDS, WHITE OR GRAY.
Per box of twenty-five cards.

No. 2. Size 9 x11,		\$0 45
“ 6½x 8½,		30

NO. 1 CARDS WITH INDIA TINT.
Per box of twenty-five cards.

Cards 8x10, India Tint, 5x3,		1 12
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NO. 9 PLAIN CARDS WITH ROUND CORNERS.
White Gray, Primrose, or Duplex Maroon-Gray.
Per box of twenty-five cards.

Boudoir Size (or 5x8), 5¼x8¼,		55
Panel “ 4 x8¼,		45
Cabinet “ 4¼x6½,		33
4¼x5¼ “		30
3½x4½ “		25

PLAIN CARDS, WITH SQUARE GILT LINES.
White or Gray.
Per box of twenty-five cards.

No. 2 Cards, 10x12, Opening 6x8,		1 00
“ 2 “ 9x11, “ 5x8,		80
“ 2 “ 6½x8½, “ 4x5,		60

GOLD BEVELED CARDS, WITH CLEAN-CUT EDGES—PURE NON-TARNISHABLE GOLD LEAF.

No. 26 White, Gray, Primrose, or Duplex Maroon-Gray.
Per box of twenty-five cards.

Boudoir Size (or 5x8), 5¼x8½,		85
Panel “ 4 x8¼,		75
Cabinet “ 4¼x6½,		52
4¼x5¼ “		50
3½x4½ “		40
2½x4¼ “		25

GOLD BEVELED EDGE CARDS, WITH SERRATED EDGES.
Primrose or Duplex Maroon-Gray.
Per box of twenty-five cards.

Size 5 x8,		\$1 00
“ 4¼x5¼,		70
“ 3½x4½,		45

CARD MOUNTS.

PRICE PER ONE HUNDRED.

2990. PLAIN CARDS, assorted tints, No. 1,	6½x 8½,		\$1 30
2991. “ “ No. 2,	“		1 05
2992. “ “ No. 1,	9 x11,		2 15
2993. “ “ No. 2,	“		1 75

No.							PRICE.
2994.	PLAIN CARDS, assorted tints.	No. 1,	10 x12,	.	.	.	2 75
2995.	"	No. 2,	"	.	.	.	2 25
2996.	INDIA TINT CARDS.	No. 34,	8 x10,	.	.	.	3 50
2997.	"	No. 20,	11 x14,	.	.	.	4 75

The tinted opening of 2996 measures 5¾x7¾ inches, and that of 2997 8x10¼ inches.

2998.	PANEL CARDS, all tints,	No. 65,	3¼x4½,	.	.	.	1 25
2999.	"	No. 26,	4¼x5¼,	.	.	.	1 80
3000.	"	No. 26,	5 x8,	.	.	.	3 90
3001.	CABINET CARDS, assorted,	No. 43,	4¼x6½,	.	.	.	1 65
3002.	"	No. 43,	4¼x6½,	.	.	.	1 65
3003.	"	No. 99,	4¼x6½,	.	.	.	1 65
3004.	BOUDOIR CARDS, green or maroon,	No. 68,	5½x8½,	.	.	.	4 10
3005.	CARTE DE VISITE MOUNTS, assorted,	No. 35,	2½x4½,	.	.	.	25
3006.	"	No. 42,	2½x4½,	.	.	.	35
3007.	"	No. 43,	2½x4½,	.	.	.	85
3008.	STEREOSCOPIC CARD MOUNTS, assorted,	No. 5,	3½x7,	.	.	.	65
3009.	"	No. 5,	4 x7,	.	.	.	70
3010.	"	No. 5,	4¼x7,	.	.	.	75
3011.	"	No. 5,	4½x7,	.	.	.	85
3012.	"	No. 5,	5 x8,	.	.	.	1 20

All the above Cards are from pure stock (A. M. Collins, Son & Co.), guaranteed entirely free from soda, and not to injure the prints.

SQUEEGEE ROLLER.



No. 3013.

No.							PRICE.
3013.	IMPROVED SQUEEGEE ROLLER,	.	.	.	.	.	\$1 00

This Roller is especially designed to be used in place of the ordinary Squeegee in working film and paper negatives, bromide, and transferotype prints, and in mounting albumen and ferro-prussiate prints. It is neatly made, with black walnut handle, brass trimmings, and a heavily covered rubber roller.

READY SENSITIZED ALBUMEN PAPER.

No.						PRICE.
3015.	PACKAGE SENSITIZED PAPER,	one dozen, 4 x 5, .25,	two dozen, .			40
3016.	"	"	"	4½ x 5½, .25,	"	50
3017.	"	"	"	5½ x 7, .40,	"	75
3018.	"	"	"	5 x 8, .40,	"	75
3019.	"	"	"	6½ x 8½, .60,	"	1 10
3020.	"	"	"	8 x 10, .80,	"	1 50
3021.	ROLL SENSITIZED PAPER,	"	18 x 22,	.	.	3 00

This paper is made expressly for us by the best manufacturer in Paris, in a beautiful pearl shade only. Its quality is of the best, it is highly sensitized, prints readily, and tones to any desired tint with the greatest facility. It is almost universally used in the galleries of Europe, yielding effects in no wise inferior to those obtainable with freshly sensitized paper. Its keeping qualities are extraordinary, as excellent prints may be made with it a year after sensitizing. Each package is made up with chemically prepared pads, which greatly add to its keeping qualities; and to save possible loss, packages and rolls are not broken. Formulæ for printing and toning accompany each package. For the amateur, this Ready Sensitized Paper is an indispensable requisite, whilst to the professional photographer it offers numerous advantages which he will not be slow to recognize.

3022.	JAPANNED TIN CASE, to hold roll of 3021,	.	.	.	.	35
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FERRO-PRUSSATE PAPER.

3024.	PACKAGE FERRO-PRUSSATE PAPER,	1 dozen, 3½ x 4½	.	.	.	\$0 12
3025.	"	"	"	4 x 5	.	15
3026.	"	"	"	4½ x 5½	.	15
3026*.	"	"	"	4½ x 6½	.	20
3027.	"	"	"	5 x 7	.	25
3027*.	"	"	"	5½ x 7	.	25
3028.	"	"	"	5 x 8	.	25
3029.	"	"	"	6½ x 8½	.	35
3030.	"	"	"	8 x 10	.	45
3032.	"	"	"	10 x 12	.	75
3033.	"	"	"	18 x 22	.	2 00
3034.	ROLL FERRO-PRUSSATE PAPER,	11 yards, 30 inches wide,	.	.	.	2 50

This Paper is also made expressly for us in Paris, and is far superior to any other in the market, being of uniform sensitiveness and entirely free from spots, streaks, or flaws, printing a brilliant blue with clear whites. It is extremely simple in its manipulation and therefore very convenient for making proofs from negatives, whilst for the rapid reproduction of plans, drawings, etc., it has no equal. Full instructions for use accompany each package. A sample print will be sent to any address on application.

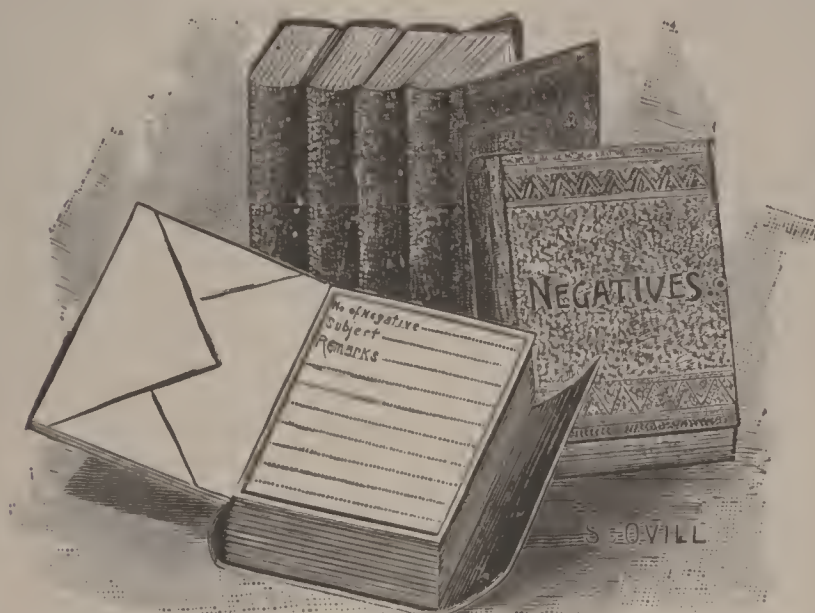
PAPERS, VARIOUS.

3035.	LITMUS PAPER.	Blue or Red, per sheet,	.	.	.	\$0 '05
3036.	"	"	"	in books, per doz.,	.	40
3037.	POST	"	For Dark Room,	"	.	25
3038.	ONION	"	"	Vignetting, etc.,	"	25
3039.	TISSUE	"	"	best English, per doz.,	.	20
3040.	"	"	"	Dark Room, yellow,	"	10
3041.	WHITE BLOTING PAPER,	19x24,	"	.	.	1 00
3042.	CARBUTT'S RUBY PAPER.	For Dark Room. Per sheet, 20x24,	.	.	.	25

PASTES FOR MOUNTING PRINTS.

No.												PRICE.
3045.	PARLOR PASTE.	$\frac{1}{2}$ pint jar,	.	.	.	.	.	.	.	.	.	\$0 25
3046.	"	1 "	.	.	.	.	.	.	.	.	.	45
3047.	"	1 quart jar,	.	.	.	.	.	.	.	.	.	65

THE HOWARD PRINT AND NEGATIVE BINDERS.

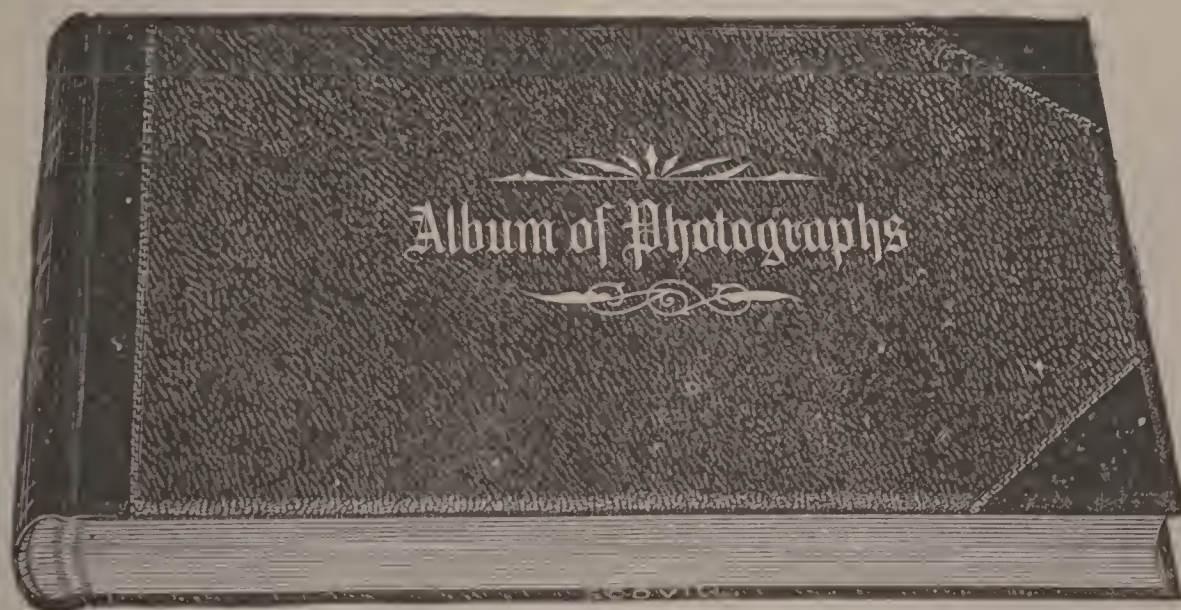


Nos. 3048-3054.

3048.	HOWARD BINDER,	No. 30,	for $3\frac{1}{4} \times 4\frac{1}{4}$ to $4\frac{1}{4} \times 5\frac{1}{2}$,	Prints or Negatives,	55
3049.	"	"	No. 31, " $4\frac{1}{4} \times 6\frac{1}{2}$ "	5 x8 "	65
3053.	"	"	No. 32, " $6\frac{1}{2} \times 8\frac{1}{2}$ "	" "	85
3054.	"	"	No. 33, " 8 x10 "	" "	1 15

These convenient Binders consist of heavy, finely surfaced envelopes, secured in cloth covers and printed for reference, as shown in the cut. They are designed for the classification and preservation of film, paper, or glass negatives; and mounted or unmounted photographs.

VIEW ALBUMS.



Nos. 3055-3058.

							Plain.	With Gilt Borders.
3055.	VIEW ALBUMS.	For Pictures	$3\frac{1}{4} \times 4\frac{1}{4}$ to $4\frac{1}{4} \times 5\frac{1}{2}$,	.	.	.	\$1 15	\$1 65
3056.	"	"	$4\frac{1}{4} \times 6\frac{1}{2}$ "	5 x8	.	.	1 40	1 90
3057.	"	"	$6\frac{1}{2} \times 8\frac{1}{2}$.	.	.	.	2 00	2 50
3058.	"	"	8 x10 .	.	.	.	2 25	2 75

GELATINE DRY PLATES.

In these latter days, the work of the Photographer being done almost exclusively with *Dry Plates*, we have described no apparatus in this Catalogue not adapted to that process. But few Photographers will ever go to the trouble of making their own plates, preferring to purchase those of some reliable maker, as combining the elements of convenience and economy. Some prefer one brand and some another; one likes extreme sensitiveness, another delights in a plate slow enough to permit long exposures. For the wants of all these classes we provide by carrying in stock the leading makes, all of which are sold at uniform prices. For Portraiture and Interiors we specially recommend the Harvard and Ripley's Instantaneous Plates; for General Landscape work, Ripley's Rapid Landscape and Carbutt's B, whilst the latter's new Orthochromatics are especially adapted for producing the best Photo-Micrographic work. But we keep all, Seed, Cramer, Stanley, Eastman's, etc., and desire our customers to make their own selections.

GENERAL PRICE-LIST.

No.						PRICE.
3060.	GELATINE DRY PLATES, any make,	2 $\frac{3}{4}$ x 3 $\frac{1}{4}$,	per dozen,	.	.	\$0 35
3061.	"	"	" 3 $\frac{1}{4}$ x 4 $\frac{1}{4}$,	"	.	45
3062.	"	"	" 4 x 5,	"	.	65
3063.	"	"	" 4 $\frac{1}{4}$ x 5 $\frac{1}{2}$,	"	.	75
3064.	"	"	" 4 $\frac{1}{4}$ x 6 $\frac{1}{2}$,	"	.	90
3065.	"	"	" 5 x 7,	"	.	1 10
3066.	"	"	" 5 $\frac{1}{2}$ x 7,	"	.	1 25
3067.	"	"	" 5 x 8,	"	.	1 25
3068.	"	"	" 6 $\frac{1}{2}$ x 8 $\frac{1}{2}$,	"	.	1 65
3069.	"	"	" 8 x 10,	"	.	2 40
3070.	"	"	" 10 x 12,	"	.	3 80
3071.	"	"	" 11 x 14,	"	.	5 00
3072.	"	"	" 14 x 17,	"	.	9 00
3072*.	"	"	" 17 x 20,	"	.	13 00
3072.**	"	"	" 18 x 22,	"	.	15 50

LANTERN TRANSPARENCY PLATES.

ON THIN CRYSTAL PLATE.

3073.	RIPLEY'S LANTERN PLATES,	3 $\frac{1}{4}$ x 4,	per dozen,	.	.	60
3074.	CARBUTT'S	" 3 $\frac{1}{4}$ x 4,	"	.	.	65
3074*.	EASTMAN'S	" 3 $\frac{1}{4}$ x 4,	"	.	.	70

CARBUTT'S ORTHOCHROMATIC PLATES.

3061*.	CARBUTT'S ORTHOCHROMATIC PLATES,	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$,	per dozen,	.	.	55
3062*.	"	" 4 x 5,	"	.	.	80
3063*.	"	" 4 $\frac{1}{4}$ x 5 $\frac{1}{2}$,	"	.	.	90
3064*.	"	" 4 $\frac{1}{4}$ x 6 $\frac{1}{2}$,	"	.	.	1 08
3065*.	"	" 5 x 7,	"	.	.	1 40
3067*.	"	" 5 x 8,	"	.	.	1 50
3068*.	"	" 6 $\frac{1}{2}$ x 8 $\frac{1}{2}$,	"	.	.	2 00
3070*.	"	" 8 x 10,	"	.	.	3 00

Transparency Plates are specially made with a slow emulsion for this purpose, of all sizes from 3 $\frac{1}{4}$ x4 $\frac{1}{4}$ to 17x20.

TRANSPARENCY FRAMES.



Nos. 3075-3082.

No.									PRICE.
3075.	TRANSPARENCY FRAME,	4 x 5 inches,	.	.	.	.	.	.	\$0 28
3076.	"	" 4½ x 5½	"	.	.	.	.	.	32
3077.	"	" 5½ x 7	"	.	.	.	.	.	34
3078.	"	" 5 x 8	"	.	.	.	.	.	34
3079.	"	" 6½ x 8½	"	.	.	.	.	.	38
3080.	"	" 8 x 10	"	.	.	.	.	.	48
3081.	"	" 10 x 12	"	.	.	.	.	.	75
3082.	"	" 11 x 14	"	.	.	.	.	.	90

These frames are made to hang vertically or horizontally. In ordering please state which is wanted.

To give Transparencies a finish they are backed when placed in the frames with a plate of ground glass, either plain or with etched margins.

GROUND GLASS FOR TRANSPARENCY FRAMES.

No.										Plain.	Etched Border.
3083.	GROUND GLASS PLATE,	4 x 5,	.	.	.	.	.	.	.	\$0 10	
3084.	"	"	"	4½ x 5½,	.	.	.	.	.	12	\$0 30
3085.	"	"	"	5½ x 7,	.	.	.	.	.	15	45
3086.	"	"	"	5 x 8,	.	.	.	.	.	15	45
3087.	"	"	"	6½ x 8½,	.	.	.	.	.	20	50
3088.	"	"	"	8 x 10,	.	.	.	.	.	25	65
3089.	"	"	"	10 x 12,	.	.	.	.	.	30	75

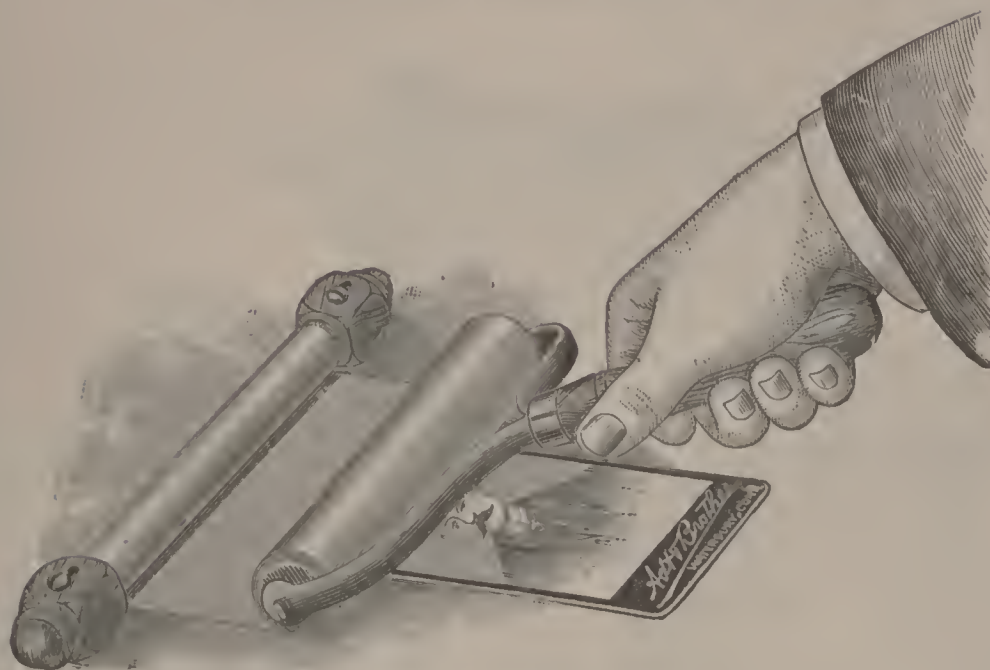
VARNISHES.

3091.	ANTHONY'S DRY PLATE VARNISH.	Per bottle,	.	.	.	.	.	.	.	40
3092.	CARBUTT'S KEYSTONE	"	"	.	.	.	.	.	.	50
3093.	MOUNTFORT'S	"	"	.	.	.	.	.	.	50
3094.	PHOENIX FERROTYPE	"	"	.	.	.	.	.	.	50
3095.	HANCE'S GRIT	"	"	.	.	.	.	.	.	50
3096.	"	GROUND GLASS SUBSTITUTES.	"	.	.	.	.	.	.	50
3097.	ROLFE'S RETOUCHING VARNISH.	"	"	.	.	.	.	.	.	40
3098.	PEERLESS VARNISH POT AND FILTER,	.	.	.	.	.	.	.	.	50

MISCELLANEOUS ARTICLES.

3130.	GLASS STIRRING ROD.	8-inch.	Both ends glaze finished,	.	.	.	.	.	.	10
3131.	"	"	" 12 "	"	"	"	.	.	.	15
3132.	"	"	" 15 "	"	"	"	.	.	.	20
3133.	"	"	" 18 "	"	"	"	.	.	.	25
3135.	BRISTLE BRUSH, FLAT.	1 inch wide,	.	.	.	.	.	.	.	15
3137.	"	"	" 1½ "	.	.	.	.	.	.	25
3138.	"	"	" 2 "	.	.	.	.	.	.	35
3139.	"	"	" 2½ "	.	.	.	.	.	.	50
3140.	RUBBER FOCUSING CLOTH.	40 inches square,	.	.	.	.	.	.	.	1 00
3142.	VELVET	"	"	.	.	.	.	.	.	2 00
3143.	MATS for Lantern Slides.	Per package,	.	.	.	.	.	.	.	25
3144.	GLASS	"	" Covers, 3¼x4. Thin white crystal.	Per doz.,	.	.	.	.	.	50
3144*.	"	"	" " " P. B. C.,	"	.	.	.	.	.	30
3145.	NEEDLE PAPER for binding edges of Lantern Slides.	Per sheet,	.	.	.	.	.	.	.	05
3146.	INDIA INK.	Per stick,	.	.	.	.	.	.	.	25
3147.	CANVAS BAG for Extension Tripods Nos. 1 and 2,	.	.	.	.	.	.	.	.	1 50
3148.	"	"	" " No. 3,	.	.	.	.	.	.	2 50
3149.	CARBUTT'S POTASH DEVELOPER.	Package of two bottles,	.	.	.	.	.	.	.	60
3151.	ANTHONY'S NEGATIVE COTTON, per oz.,	.	.	.	.	.	.	.	.	50
3152.	"	"	COLLODION, per bottle,	.	.	.	.	.	.	50
3153.	WALMSLEY'S PLAIN	"	"	.	.	.	.	.	.	50
3154.	MITCHELL'S ANTI COCKLING MOUNTING SOLUTION,	.	.	.	.	.	.	.	.	50
3155.	ADT'S PATENT ADJUSTABLE PHOTO CLIPS.	Per dozen,	.	.	.	.	.	.	.	75
3156.	WAGNER'S RETOUCHING CYLINDERS.	Various tints.	Each,	.	.	.	.	.	.	50
3157.	LOCKWOOD'S PHOTO CLIPS, with Hooks.	Per dozen,	.	.	.	.	.	.	.	85
3158.	FRENCH AZOTATE for Toning Prints.	Per bottle,	.	.	.	.	.	.	.	25
3159.	HYDROMETERS for Testing Silver Baths.	Each,	.	.	.	.	.	.	.	60
3160.	NEW ACME WATER COLORS.	Per box (18 colors),	.	.	.	.	.	.	.	2 50
3161.	"	"	" " 6 "	.	.	.	.	.	.	1 00
3162.	CANARY FABRIC.	For lighting dark room, per square yard,	.	.	.	.	.	.	.	60
3163.	RUBY	"	"	"	"	"	.	.	.	60
3164.	ALCOHOL LAMP,	.	.	.	.	.	.	.	.	60
3165.	W. & C. PRESERVING TUBES, for Sensitized Paper, 18x22,	.	.	.	.	.	.	.	.	2 00
3166.	"	PAPER PRESERVATIVE.	Per box,	.	.	.	.	.	.	35

THE ADT PATENT PRINT MOUNTER.



No. 3168.

No.	PRICE.
3168. ADT'S PATENT PRINT MOUNTER,	\$1 50

This consists of a spring roller attached to a handle, and upon which is wound a band of fine cotton cloth, one end being fastened to a rod, which is screwed to the mounting table. After the pasted print has been placed upon the mount, the roller is drawn over it, as shown in the cut, the spring roller drawing the cloth band perfectly tight, and rewinding it when the roller returns.

ADT'S PATENT MANIPULATOR.



No. 3169.

3169. ADT'S PATENT MANIPULATOR,	
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As will be seen by a glance at the cut, this device not only protects the hands in lifting the plate from the developer, but, as they do not come in contact with the tray, stained fingers are entirely avoided. It is attachable to and will firmly hold various sizes and depths of trays without adjusting.

DEVELOPING OUTFITS.



Nos. 3100-3105.

No.	PRICE.
3100. DEVELOPING OUTFIT, No. 1. $4\frac{1}{4} \times 5\frac{1}{2}$,	\$3 50
One dozen Plates $3\frac{1}{4} \times 4\frac{1}{4}$, 4×5 , or $4\frac{1}{4} \times 5\frac{1}{2}$, Two Developing Trays, $4\frac{1}{4} \times 5\frac{1}{2}$, One 2-ounce Graduate, “ pound Hyposulphite Soda, “ package Autograph Developer,	One Ruby Glass Lantern, W. I. A., “ set Scales and Weights, 5 inches, “ half-pound Alum, “ ounce Bromide Potassium, “ Instruction Book. “ Note Book.

3101. DEVELOPING OUTFIT, No. 2.	5x8,	.	.	.	.	.	.	4 50
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This Outfit is the same as No. 3100, with the substitution of 5x7 to 5x8 Plates, and Pans, Graduates, etc., to correspond.

3102. DEVELOPING OUTFIT, No. 3.	6½x8½,	.	.	.	.	.	.	5 00
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This Outfit is the same as No. 3100, with the substitution of $6\frac{1}{2}\times 8\frac{1}{2}$ Plates, and Pans, Graduates, etc., to correspond.

The foregoing Outfits comprise only those articles absolutely essential to the making of a negative. Those now to be described are much more complete and afford greater latitude for experimental developing.

3103. COMPLETE DEVELOPING OUTFIT, No. 4.	4½x5½,	.	.	.	.	8 50
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This Outfit comprises the following articles, securely packed in a wooden case:

One dozen Dry Plates, $3\frac{1}{4} \times 4\frac{1}{4}$ to $4\frac{1}{4} \times 5\frac{1}{2}$,	One pound Neutral Oxalate Potassium,
Two Japanned Developing Trays,	“ “ Protosulphate Iron,
One set Scales and Weights, 5-inch,	“ “ Hyposulphite Soda,
“ 4-ounce Graduate,	“ “ Alum,
One Package Autograph Developer.	

One Minim Measure,	One bottle Negative Varnish,
“ ounce Bromide Potassium,	“ Paragon Lantern, 2824,*
“ “ Sulphuric Acid,	“ Efficient Plate Lifter,
“ “ Oxalic Acid,	“ Focusing Cloth,
“ One package Silver Intensifier.	“ Note Book,
“ Camel's-hair Brush, flat,	“ Instruction Book.

3104. COMPLETE DEVELOPING OUTFIT, No. 5. 5x7 to 5x8, . . . 9 50

This Outfit is the same as No. 3103, with the substitution of 5x7 to 5x8 Plates, and Pans, Graduates, etc., to correspond.

3105. COMPLETE DEVELOPING OUTFIT, No. 6. 6½x8½, . . . 10 50

This Outfit is the same as No. 3103, with the substitution of 6½x8½ Plates, and Pans, Graduates, etc., to correspond.

PRINTING AND TONING OUTFITS.



Nos. 3107-3112.

3107. PRINTING AND TONING OUTFIT, A, . . . 2 25

One Printing Frame,	7½ grains Chloride of Gold,
Two dozen Sheets Sensitized Paper,	One ounce Phosphate of Soda,
Two dozen Card Mounts,	One half pint jar, Parlor Paste.

With the above Outfit the Printing Frame and Sensitized Paper are furnished to suit 3¼x4¼, 4x5, or 4¼x5½ negatives as required, at the same price.

No.	PRICE.
3108. PRINTING AND TONING OUTFIT B,	\$2 75

This Outfit is the same as A, with the substitution of Printing Frame, Sensitized Paper, and Card Mounts suited to negatives 5x7, 5½x7, or 5x8.

3109. PRINTING AND TONING OUTFIT C,	3 00
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This Outfit is the same as A, with the substitution of Printing Frame, Sensitized Paper, and Card Mounts suited to negatives 6½x8½.

The above Outfits comprise all the absolutely necessary articles for printing, toning, and mounting finished pictures.

3110. COMPLETE PRINTING AND TONING OUTFIT D,	6 50
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One Printing Frame,	One Robinson's Straight Trimmer,
“ Porcelain Pan, 5x7, deep,	“ Japanned Tray, 5½x8½ inches,
“ ounce Acetate Soda,	“ pound Hyposulphite Soda,
“ bottle Chloride of Gold, 7½ grains,	“ ounce Borax,
Four dozen sheets Sensitized Paper,	“ doz. sheets Ferro Prussiate Paper,
Two “ Card Mounts,	“ package Eastman's Bromide Paper,
One two-ounce Graduate,	“ pound Neutral Oxalate Potassium,
“ sheet Blue Litmus Paper,	“ “ Protosulphate of Iron,
“ half-pint jar Parlor Paste,	“ “ Acetic Acid.
“ one-and-a-half-inch Bristle Brush,	
“ Glass Form (for trimming prints),	

The various articles with the above Outfit are furnished in sizes to suit. 3¼x4¼, 4x5, or 4¼x5½ inch negatives, as may be desired, at the same price.

3111. COMPLETE PRINTING AND TONING OUTFIT E,	8 50
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This Outfit is the same as D, with the substitution of Printing Frames and other apparatus, Sensitized Paper, etc., to suit negatives 5x7, 5½x7, or 5x8 inches.

3112. COMPLETE PRINTING AND TONING OUTFIT F,	10 00
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This Outfit is the same as D, with the substitution of Apparatus, Paper, etc., to suit negatives 6½x8½ inches.

SILVER PRINTS.

For the convenience of our amateur and other customers, we have arranged to do silver printing from their own negatives in the best possible manner. We employ only the best printers, and guarantee satisfaction. Negatives may be sent by mail.

	Unmounted.	Mounted.
3¼x 4¼ each Print,	05	09
4 x 5 “	05	09
4¼x 5½ “	07	12
4¼x 6½ “	07	12
5 x 7 “	10	15
5½x 7 “	10	15
5 x 8 “	10	15
6½x 8½ “	15	23
8 x10 “	25	35

The above prices are for plain prints and plain white or tinted card mounts. For vignetting or for fancy cards, extra charges are made.

ARGENTIC DRY PLATES.

Ever since the introduction of Gelatino-Bromide Dry Plates for negatives, most earnest efforts have been put forth to place upon the market dry plates for ferrotypes, but without any measure of success until the beginning of the present year. The Phenix Plate Company are manufacturing, and we offer to the photographer, Argentic Plates. These are ferrotype plates, coated with gelatino-bromide emulsion, and are always ready for use. No silver bath; no long exposures required.

The Phenix Plate Co.'s Instantaneous Argentic Dry Plates will be found far superior to any other form of positive plates, giving, as they do, the maximum of beautiful effects with a minimum of labor, producing rich and brilliant pictures with a rapidity and cleanliness never before attained, doing away with the use of a silver-bath and all its concomitant evils—*pin-holes, stains, fog*, etc., not forgetting the vast saving in time and temper. The Argentic Plates are always ready-at-hand, and the working of them is simplicity itself. Their permanency and reliability are beyond question.

An exposure of from one to three seconds will suffice with a good light, two minutes to develop; three to five, to fix, wash, dry, and varnish, and the operation is complete—ready within ten minutes for delivery. For out-door work, these Plates work well with a drop-shutter exposure.

For developing the Argentic Dry Plates, any ammonia developer can be used successfully with good results; but much finer effects are produced by using the Phenix Stock Solution, which is put up in twelve-ounce bottles. By its use greater rapidity in development, purer whites, extreme brilliancy, and finer detail can be obtained, the result being far superior to that produced by any other developer. As these Plates are very rapid—being six times quicker than wet—guard well against white light.

PRICE-LIST.

No.						PRICE.
3115.	ARGENTIC DRY PLATES,	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$,	per box of 2 dozen,	.	.	\$0 90
3116.	"	4 x 5,	"	.	.	1 25
3117.	"	4 $\frac{1}{4}$ x 5 $\frac{1}{2}$,	"	.	.	1 50
3118.	"	4 $\frac{1}{4}$ x 6 $\frac{1}{2}$,	"	.	.	1 80
3119.	"	5 x 7,	"	.	.	2 00
3120.	"	5 x 8,	"	.	.	2 25
3121.	"	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$,	"	.	.	3 75
3122.	"	7 x 10,	"	.	.	4 00
3123.	"	8 x 10	"	.	.	4 50
3124.	"	10 x 14,	1 dozen,	.	.	4 00
3125.	PHENIX PYRO SOLUTION, No. 1,	per bottle, 8 oz.,	.	.	.	50
3126.	PHENIX STOCK SOLUTION, No. 2,	per bottle, 12 oz.,	.	.	.	25
3127.	PHENIX VARNISH. For Argentic Plates,	per bottle,	.	.	.	50

FERROTYPE OUTFITS.

No.	PRICE.
3170. FERROTYPE OUTFIT No. 1. For beginners,	\$37 95

For those who wish to start on a small scale, the following outfit will suffice for a beginning:

	PRICE.		PRICE.
1 $\frac{1}{4}$ Gem Camera and Holders, with 4 1-9 Darlot Gem Lens to make 4 1-9 Gems on $\frac{1}{4}$ plate,	\$18 75	1 Quill Duster,	\$0 10
1 Short Head Rest,	2 80	1 Instruction Book, Ferrotyp- ing,	75
1 $\frac{1}{4}$ Excel. Camera Stand,	3 00	1 Box $\frac{1}{4}$ Ferrotypes Plates,	1 20
1 $\frac{1}{4}$ Rubber Bath and Dipper,	1 25	500 No. 4 Ferrotypes Envelopes,	1 63
1 4x5 Rubber Dish,	60	1 pt. Silver Bath Solution,	1 90
2 No. 0 Rubber Funnels,	80	1 Bottle Ferrotypes Collodion,	65
1 3 oz. Collodion Vial,	18	1 lb. Acetic Acid,	20
1 3 oz. Graduated Glass,	30	1 lb. Cyanide Potassium,	25
1 Alcohol Lamp,	60	$\frac{1}{4}$ lb. Sulph. Iron in bottle,	20
1 Box Ferrotypes Colors, Brushes, etc,	1 60	1 Bottle Varnish,	25
1 Jar Parlor Paste and Brush,	40	1 pint 95° Alcohol,	50
		Total,	\$37 95

Those who wish to make single pictures, 1-9, 1-6, and 1-4 sizes, can do so with this outfit by adding a $\frac{1}{4}$ Darlot Portrait Lens, with central stops, which will cost extra, \$8.75.

The same outfit as above, but instead of $\frac{1}{4}$ Camera, Stand, Bath, and Dish, we will send $\frac{1}{2}$ sizes,	\$38 70
With $\frac{1}{4}$ Darlot Lens,	46 70
With $\frac{1}{2}$ Darlot Lens,	52 50

3171. FERROTYPE OUTFIT No. 2. For traveling,	51 93
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The following outfit will be found the best for traveling business on a small scale:

	PRICE.		PRICE.
1 $\frac{1}{2}$ Combination Camera, makes 1-9, 1-6, 1-4, and 1-2 single Ferrotypes, and 2 Bon Tons on a $\frac{1}{4}$ plate, and 2 card size on a $\frac{1}{2}$ plate with 1 $\frac{1}{2}$ size Lens. Price of Camera and Darlot Lens,	\$30 00	$\frac{1}{4}$ lb. Cyanide Potassium,	\$0 25
1 $\frac{1}{2}$ Excel. Camera Stand,	3 00	$\frac{1}{2}$ lb. Ferrotypes Collodion,	65
1 Tall Head Rest,	3 00	1 Bottle Varnish,	25
1 $\frac{1}{2}$ Glass Bath in Box, and Dipper,	3 30	1 Box Colors, Brushes, and Gold Saucer,	1 60
1 5x7 Rubber Dish,	75	1 pint 95° Alcohol,	50
1 Alcohol Lamp,	60	1 Box each $\frac{1}{4}$ and $\frac{1}{2}$ Ferrotypes Plates,	2 40
1 3 oz. Collodion Vial,	18	100 No. 11 Ferrotypes En- velopes,	35
1 3 oz. Graduated Glass,	30	50 No. 24 Card Envelopes,	30
2 No. 1 Rubber Funnels,	90	$\frac{1}{2}$ pint Jar Parlor Paste and Brush,	40
1 pint Silver Solution,	1 00	1 1 inch Camel's Hair Duster for Plates,	15
1 $\frac{1}{4}$ lb. Sulph. Iron in bottle,	20	1 Copy Ferrotypes Guide In- struction Book,	75
1 lb. Acetic Acid,	20	Total,	\$51 93

No.	PRICE.
3172. FERROTYPE OUTFIT No. 3. For large-size pictures,	\$118 00
1 8x10 Camera and Holders, carriage movement, fitted with 4 $\frac{1}{4}$ Gem Darlot Lenses,	40 00
1 4-4 Darlot Portrait Lens,	35 50
1 Camera Stand, boxed,	11 50
1 Tall Head Rest,	3 00
1 9x12 Glass Bath, in Box with Dipper,	6 00
1 8x10 Rubber Dish,	1 35
1 Alcohol Lamp,	60
1 8 oz. Collodion Vial,	30
1 8 oz. Graduate,	50
2 No. 3 Rubber Funnels,	1 20
1 Box Ferrotypes Colors, Brushes, etc.,	1 60
3 pints Silver Bath Solution,	5 70
2 lbs. Acetic Acid,	35
1 $\frac{1}{4}$ lb. Sulphite Iron in bottle,	20
1 lb. Cyanide Potassium,	75
1 lb. Ferrotypes Collodion,	1 25
1 pint " Varnish,	90
1 " Alcohol, 95°,	50
1 Jar Parlor Paste and Brush,	40
1 $\frac{1}{2}$ inch Camel's Hair Duster,	25
50 10x14 Ferrotypes Plates,	3 00
500 No. 11 " Envelopes,	1 50
100 No. 15 " "	90
24 No. 20 Cabinet "	40
1 Copy Ferrotypes,	1 00
Total,	\$118 00

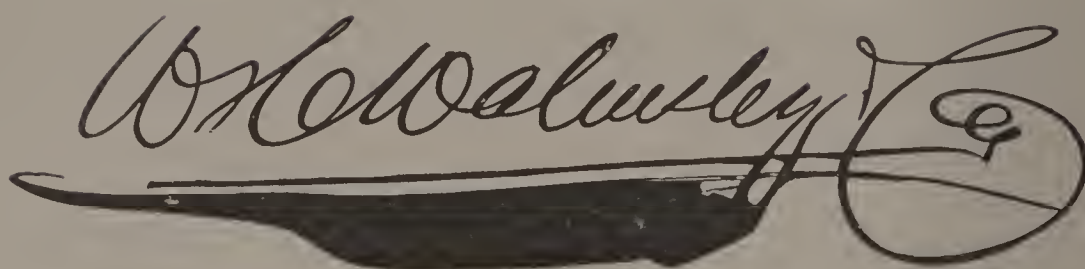
Those who do not care to make large pictures can dispense with the 4-4 Lcns. Or a Darlot $\frac{1}{4}$ size Lens can be substituted for \$17.50, making a very useful outfit. To these outfits may be added other articles, such as Backgrounds, Accessories, Posing Chairs, etc., to make them more complete.

FERROTYPE PLATES.

Black or Chocolate Tinted. Prices Subject to Fluctuation

No.	Sizes.	Egg Shell.	Glossy.
3173.	1-9, 2 x2 $\frac{1}{2}$, per box of 8 doz., Phenix,	\$0 80	\$0 90
3174.	1-6, 2 $\frac{1}{4}$ x3 $\frac{1}{4}$, " 8 " "	1 25	1 35
3175.	1-4, 3 $\frac{1}{4}$ x4 $\frac{1}{4}$, " 8 " "	1 85	2 00
3176.	1-2, 4 $\frac{1}{4}$ x5 $\frac{1}{2}$, " 4 " "	2 20	2 35
3176*.	4 $\frac{1}{4}$ x6 $\frac{1}{2}$, " 4 " "	2 20	2 35
3177.	5 x7, " 4 " "	2 40	2 70
3177*.	4-4, 6 $\frac{1}{2}$ x8 $\frac{1}{2}$, " 2 " "	2 40	2 70
3178.	10 x14, per doz., "	1 68	1 80
3178*.	10 x14, per 100, "	14 00	15 00

DEVELOPERS.



AUTOGRAPH DEVELOPER.

3179. WALMSLEY'S AUTOGRAPH DEVELOPER. Package of two bottles, \$0 60

The following advantages are claimed for this developer :

It is made from absolutely pure chemicals, under the personal supervision of Mr. Walmsley, from an original formula used by him for several years, and with far greater care than is bestowed upon any other developer ever placed upon the market.

It will keep almost indefinitely without any deterioration ; is always ready for use, and works equally well on all makes of plates.

It produces brilliant negatives of a rich gray tone, without the slightest tinge of yellow, resembling those developed with ferrous oxalate, devoid of all harshness, and quick printers.

It never causes chemical fog, even if pushed beyond ordinary prudential limits.

It admits of the utmost latitude of exposures from the quickest shutter work to greatly over-timing, without requiring material changes in the proportions of its ingredients.

It never becomes thick or discolored, and will not stain the fingers unless they are kept immersed in it for a long time.

From half a dozen to a dozen plates may always be developed with a single portion of the mixed solution, the only noticeable difference between the first and last being that the latter come up rather more slowly than the former.

Any amount of density may be obtained by prolonging the development to the desired point, without fear of veiling, which cannot occur if the light in the dark-room be a safe one.

It is the cheapest developer ever made, not only in its first cost, but because a given quantity will develop more square inches of plate perfectly than any other.

It is universal in its applications, being equally adapted to all varieties of plates, to paper negatives and films, or to the development of lantern and other transparencies.

It is put up in a compact and substantial form, especially adapted to safe transportation, whilst the directions for use accompanying each package are more complete and comprehensive than can be found in many of the manuals on the subject at present before the public. Failures are well-nigh impossible if exposures are anywhere near correct and these directions are followed.

WALMSLEY'S ALKALINE DEVELOPER.

SINGLE SOLUTION.

No.	PRICE.
3180. WALMSLEY'S CONCENTRATED ALKALINE DEVELOPER, eight-ounce bottle,	\$0 75
3181. WALMSLEY'S CONCENTRATED ALKALINE DEVELOPER, sixteen-ounce bottle,	1 25

This Developer consists of but a single solution, which merely requires to be mixed with water for use. It works perfectly with all makes of plates, is easily controlled, and is very economical in use. A ten-ounce bottle will develop a gross of 5x8 plates. Full directions for use accompany each bottle.

FERROUS OXALATE DEVELOPER.

3182. WALMSLEY'S FERROUS OXALATE DEVELOPER. Two bottles, .	\$0 75
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This is a very carefully prepared Developer from an approved formula, and is especially adapted to use with Eastman's Permanent Bromide Paper, as well as to Negative Work by those preferring Iron to Pyrogalol.

CYANIDE OF SILVER INTENSIFIER.

No.	PRICE.
3183. WALMSLEY'S SILVER INTENSIFIER, in two 8-ounce bottles, . .	\$0 75

It sometimes happens that negatives, full of detail and otherwise excellent, have not sufficient density to make good prints. Resort must then be had to an Intensifier, and the above will be found easy of manipulation, and perfect in its performance. It is put up in two bottles, containing solutions Nos. 1 and 2, with full directions for use. It may be repeatedly used by returning each solution to its respective bottle.

HYDROKINON DEVELOPER.

No.	PRICE.
3184. WALMSLEY'S HYDROKINON DEVELOPER, two 8-ounce bottles, .	\$0 60

The great merits of this developing agent are now so fully recognized that but little is necessary here to urge its use upon our friends and customers. It is slow in action, but equally sure; any amount of density may be obtained without the slightest tendency to veiling or fog, rendering it invaluable in developing Transparency and Lantern Plates and Eastman's Transferotype Paper. It may be used repeatedly without losing strength, rendering it one of the most economical of developers. Full directions accompany each package, which is prepared from an approved formula.

WALMSLEY'S PURE CHEMICALS.

W. P. C.

Prices subject to fluctuation.

All Chemicals are bought and sold by Avoirdupois weight, which has four hundred and thirty-seven and a half grains to the ounce, and sixteen ounces to the pound, whilst all the formulæ for their use and mixing are made by Apothecaries' weight—four hundred and eighty grains to the ounce and twelve ounces to the pound. Hence, if you get but four hundred and thirty-seven and a half grains of any chemical for an ounce do not think it short weight.

BOTTLES INCLUDED.

No.											PRICE.
3200.	Acid Acetic, No. 8,	.	.	.	.	.	.	.	.	per lb.,	\$0 20
3200.	" " "	.	.	.	.	.	.	.	.	per 5 lbs.,	75
3201.	" " Glacial,	.	.	.	.	.	.	.	.	per oz.,	15
3201.	" " "	.	.	.	.	.	.	.	.	per 4 oz.,	35
3201.	" " "	.	.	.	.	.	.	.	.	per 8 oz.,	60
3201.	" " "	.	.	.	.	.	.	.	.	per lb.,	1 00
3202.	" Citric, .	.	.	.	.	.	.	.	.	per oz.,	15
3202.	" " .	.	.	.	.	.	.	.	.	per lb.,	90
3202*.	" Gallic, .	.	.	.	.	.	.	.	.	per oz.,	20
3203.	" Muriatic, Commercial,	.	.	.	.	.	.	.	.	per lb.,	27
3203.	" " "	.	.	.	.	.	.	.	.	per 6 lbs.,	75
3203.	" " C. P., .	.	.	.	.	.	.	.	.	per $\frac{1}{4}$ lb.,	25
3203.	" " "	.	.	.	.	.	.	.	.	per $\frac{1}{2}$ lb.,	35
3203.	" " "	.	.	.	.	.	.	.	.	per lb.,	50
3203.	" " "	.	.	.	.	.	.	.	.	per 6 lbs.,	1 75
3204.	" Nitric, Commercial, .	.	.	.	.	.	.	.	.	per lb.,	35
3204.	" " "	.	.	.	.	.	.	.	.	per 7 lbs.,	1 25
3204.	" " C. P., .	.	.	.	.	.	.	.	.	per oz.,	15
3204.	" " "	.	.	.	.	.	.	.	.	per $\frac{1}{4}$ lb.,	20
3204.	" " "	.	.	.	.	.	.	.	.	per $\frac{1}{2}$ lb.,	30
3204.	" " "	.	.	.	.	.	.	.	.	per lb.,	50
3204.	" " "	.	.	.	.	.	.	.	.	per 7 lbs.,	2 50
3205.	" Oxalic, .	.	.	.	.	.	.	.	.	per oz.,	10
3205.	" " .	.	.	.	.	.	.	.	.	per lb.,	40
3206.	" Pyrogallic, E. A., .	.	.	.	.	.	.	.	.	per oz.,	40
3206.	" " Schering's,	.	.	.	.	.	.	.	.	per $\frac{1}{2}$ oz.,	25
3206.	" " "	.	.	.	.	.	.	.	.	per oz.,	45
3206.	" " "	.	.	.	.	.	.	.	.	per $\frac{1}{4}$ lb.,	1 45
3206.	" " "	.	.	.	.	.	.	.	.	per $\frac{1}{2}$ lb.,	3 00
3206.	" " "	.	.	.	.	.	.	.	.	per lb.,	5 00
3207.	" Sulphuric, C. P., .	.	.	.	.	.	.	.	.	per oz.,	15
3207.	" " "	.	.	.	.	.	.	.	.	per $\frac{1}{4}$ lb.,	25
3207.	" " "	.	.	.	.	.	.	.	.	per $\frac{1}{2}$ lb.,	35
3207.	" " "	.	.	.	.	.	.	.	.	per lb.,	45
3208.	" Sulphurous, .	.	.	.	.	.	.	.	.	per $\frac{1}{4}$ lb.,	20
3208.	" " .	.	.	.	.	.	.	.	.	per $\frac{1}{2}$ lb.,	30
3208.	" " .	.	.	.	.	.	.	.	.	per lb.,	40
3209.	" Salicylic, .	.	.	.	.	.	.	.	.	per oz.,	25
3209*.	" Tartaric, .	.	.	.	.	.	.	.	.	per oz.,	15
3209*.	" " .	.	.	.	.	.	.	.	.	per lb.,	80
3210.	Ammonium, Bromide, .	.	.	.	.	.	.	.	.	per oz.,	20
3210.	" " .	.	.	.	.	.	.	.	.	per $\frac{1}{4}$ lb.,	45
3210.	" " .	.	.	.	.	.	.	.	.	per $\frac{1}{2}$ lb.,	60

No.									PRICE.
3230*.	Potassium, Ferricyanide (Red Prussiate),	.	.	.	.	.	.	per oz.,	\$0 20
3230**.	" Ferrocyanide (Yellow Prussiate),	.	.	.	.	.	.	per lb.,	70
3230***.	" " " "	.	.	.	.	.	.	per oz.,	15
3231.	" Iodide,	.	.	.	.	.	.	per oz.,	30
3231.	" " " "	.	.	.	.	.	.	per ¼ lb.,	90
3232.	" Oxalate, Neutral,	.	.	.	.	.	.	per lb.,	35
3233.	" Sulphuret,	.	.	.	.	.	.	per ½ lb.,	25
3233.	" " " "	.	.	.	.	.	.	per lb.,	40
3234.	" Bichromate, Commercial,	.	.	.	.	.	.	per lb.,	30
3234.	" " C. P.,	.	.	.	.	.	.	per lb.,	90
3235.	Sodium, Acetate,	.	.	.	.	.	.	per oz.,	15
3235.	" " " "	.	.	.	.	.	.	per ½ lb.,	35
3235.	" " " "	.	.	.	.	.	.	per lb.,	50
3236.	" Bicarbonate,	.	.	.	.	.	.	per lb.,	12
3236*.	" Bromide,	.	.	.	.	.	.	per oz.,	15
3237.	" Carbonate,	.	.	.	.	.	.	per lb.,	40
3237*.	" Chloride,	.	.	.	.	.	.	per oz.,	12
3238.	" Citrate,	.	.	.	.	.	.	per oz.,	15
3238.	" " " "	.	.	.	.	.	.	per 3 oz.,	35
3238.	" " " "	.	.	.	.	.	.	per lb.,	1 00
3239.	" Hyposulphite, in bulk,	.	.	.	.	.	.	per lb.,	06
3239.	" " " box,	.	.	.	.	.	.	per lb.,	08
3239.	" " " bottle,	.	.	.	.	.	.	per lb.,	16
3239.	" " " bulk,	.	.	.	.	.	.	per 10 lbs.,	50
3239.	" " " keg,	.	.	.	.	.	.	per 112 lbs.,	4 00
3239*.	" Nitrate,	.	.	.	.	.	.	per lb.,	35
3240.	" Phosphate,	.	.	.	.	.	.	per oz.,	15
3240.	" " " "	.	.	.	.	.	.	per ½ lb.,	30
3240.	" " " "	.	.	.	.	.	.	per lb.,	50
3241.	" Sulphite, Crystallized,	.	.	.	.	.	.	per oz.,	12
3241.	" " " "	.	.	.	.	.	.	per ½ lb.,	20
3241.	" " " "	.	.	.	.	.	.	per lb.,	30
3241.	" " Granular,	.	.	.	.	.	.	per oz.,	15
3241.	" " " "	.	.	.	.	.	.	per ½ lb.,	30
3241.	" " " "	.	.	.	.	.	.	per lb.,	55
3242.	" Tungstate,	.	.	.	.	.	.	per oz.,	20
3243.	Silver, Nitrate, C. P., variable,	.	.	.	.	.	about	per oz.,	85
3243.	" " " "	.	.	.	.	.	"	per ½ lb.,	6 25
3243.	" " " "	.	.	.	.	.	"	per lb.,	12 00
3243*.	Strontium, Nitrate,	.	.	.	.	.	.	per oz.,	15
3243*.	Tannin,	.	.	.	.	.	.	per oz.,	30
3244.	Uranium, Nitrate,	.	.	.	.	.	.	per ¼ oz.,	30
3244.	" " " "	.	.	.	.	.	.	per ½ oz.,	50
3244.	" " " "	.	.	.	.	.	.	per oz.,	90
3245.	Water, Distilled,	.	.	.	.	.	.	per gal.,	40
3246.	Zinc, Bromide,	.	.	.	.	.	.	per oz.,	25
3247.	" Iodide,	.	.	.	.	.	.	per oz.,	60
3248.	Flandreau's Hypo Eliminator,	.	.	.	.	.	.	per bottle,	50
3249.	Flash Cotton. For the Magnesium Flash Light,	.	.	.	.	.	.	per oz.,	50
3250.	Carbutt's Actinic Light Compound,	"	"	.	.	.	.	per oz.,	75
3251.	Blitz Pulver,	"	"	.	.	.	.	per package,	60

FILM PHOTOGRAPHY.



WE ARE NOW READY TO SUPPLY THE EASTMAN DRY PLATE AND FILM COMPANY'S

NEW MATERIALS FOR MAKING FLEXIBLE NEGATIVES, AS FOLLOWS:

IMPROVED AMERICAN FILMS AND NEGATIVE PAPER, cut sheets, regular sizes.

IMPROVED AMERICAN FILMS AND NEGATIVE PAPER. On spools to fit the Eastman-Walker Roll-Holders.

THE IMPROVED EASTMAN-WALKER ROLL-HOLDERS, MODEL OF 1887. For making exposures on the continuous strip. Film or negative paper.

FILM CARRIERS, for supporting single sheets of the film or negative paper in ordinary plate-holders.

EASTMAN-WALKER IMPROVED ROLL-HOLDER.

(MODEL OF 1887.)

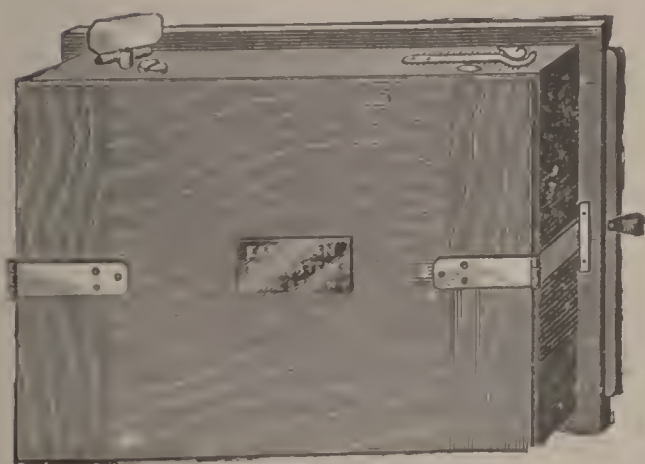


Fig. 1.



Fig. 2.

This new Holder has the following advantages over all previous patterns: A reduction in weight, a reduction in size, a reduction in number of parts, a reduction in price.

The metal inside frame has been dispensed with and the working parts attached directly to the wood case, which has been strengthened to bear the strain, the result being a stronger, more simple, and cheaper Holder; less liable to get out of repair than the old form.

Fig. 1 shows the Holder closed. Fig. 2 shows the cover removed and the case detached from the shutter frame.

ROLL-HOLDERS.

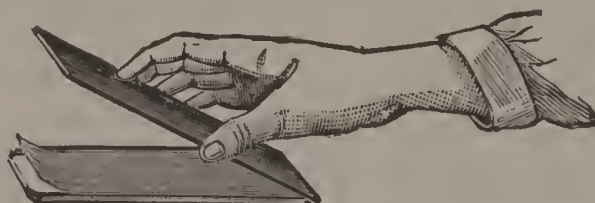
Fitted with Single Revolution, Audible Indicators.

No.						PRICE.
3400.	EASTMAN IMPROVED ROLL-HOLDER.	Model of 1887,	3 $\frac{1}{4}$ x4 $\frac{1}{4}$,	.		\$9 00
3401.	"	"	"	"	4 x 5,	10 00
3402.	"	"	"	"	4 $\frac{1}{4}$ x 5 $\frac{1}{2}$,	10 00
3403.	"	"	"	"	4 $\frac{1}{4}$ x 6 $\frac{1}{2}$,	10 00
3404.	"	"	"	"	4 $\frac{3}{4}$ x 6 $\frac{1}{2}$,	12 50
3405.	"	"	"	"	5 x 7,	12 50
3408.	"	"	"	"	5 x 8,	12 50
3409.	"	"	"	"	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$,	16 00
3410.	"	"	"	"	8 x10,	20 00
3411.	"	"	"	"	10 x12,	24 00
3412.	"	"	"	"	11 x14,	30 00
3413.	"	"	"	"	14 x17,	40 00

Every Roll-Holder is sent out fitted with a spool of plain paper to enable the operator to learn the manipulation in white light.

An extra charge is made for fitting Holders to all Cameras, excepting those made by the Eastman Company.

FILM CARRIERS.

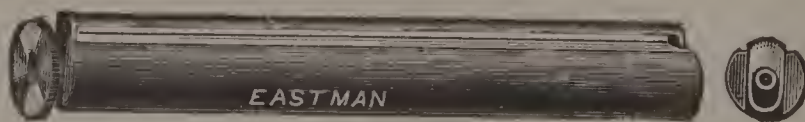


Nos. 3415-3424.

3415.	FILM CARRIER,	$\frac{1}{32}$ or $\frac{1}{8}$ inch thick,	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$,	.	.	.	.	.	.	\$0 25
3416.	"	"	"	"	4 x 5,	.	.	.	.	30
3417.	"	"	"	"	4 $\frac{1}{4}$ x 6 $\frac{1}{2}$,	.	.	.	.	35
3418.	"	"	"	"	5 x 7,	.	.	.	.	35
3419.	"	"	"	"	5 x 8,	.	.	.	.	35
3420.	"	"	"	"	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$,	.	.	.	.	40
3421.	"	"	"	"	8 x10,	.	.	.	.	50
3422.	"	"	$\frac{3}{16}$	"	10 x12,	.	.	.	.	60
3423.	"	"	"	"	11 x14,	.	.	.	.	75
3424.	"	"	"	"	14 x17,	.	.	.	.	1 00

Film Carriers are used to expose single sheets of American Film or Negative Paper in ordinary double holders, and can be used with any camera. The Carriers consist of a light metal frame, which clamps the edges of the cut sheet against a thin board. The device is simple and effective, and is recommended for trial where the cost of a roll-holder is an objection.

EXTRA REELS.



Nos. 3425-3434, 50 cents to 75 cents each.

Extra Reels enable the operator to remove the exposed paper from the roll-holder without separating the exposures or re-winding the paper film, an operation that should always be avoided.

SQUEEGEES.

(ILLUSTRATION IN NEXT EDITION.)

No.	Nos. 3440-3442.										PRICE.
3440.	SQUEEGEE.	Velvet Rubber, 6-inch,	.	.	.	.	.	.	.	.	\$0 40
3441.	"	" " 8 "	.	.	.	.	.	.	.	.	50
3442.	"	" " 12 "	.	.	.	.	.	.	.	.	75

Squeegees are used to remove the water from films and paper negatives when the latter are transferred to glass or rubber plates. They are exceedingly useful in any operation requiring the removal of surplus moisture from a flat surface.

HARD RUBBER PLATES.

These Plates are used for drying film or paper negatives, or the Permanent Bromide Paper, A or B, when it is desired to have a glossy surface on the latter. The negative or print is laid upon the rubber plate, face down, and the water pressed from it with a squeegee; the plate is then placed in an ordinary negative rack to dry, when the print will peel off from it of its own accord. One can be placed on each side of the plate, which has a highly polished surface.

3445.	HARD RUBBER PLATE,	$\frac{1}{8}$ inch thick,	4 x 5,	.	.	.	.	.	.	\$0 10
3446.	"	"	" 5 x 7,	.	.	.	.	.	.	18
3447.	"	"	" 5 x 8,	.	.	.	.	.	.	20
3448.	"	"	" $6\frac{1}{2}$ x $8\frac{1}{2}$,	.	.	.	.	.	.	30
3449.	"	"	" 8 x 10,	.	.	.	.	.	.	40
3450.	"	"	" 10 x 12,	.	.	.	.	.	.	60
3451.	"	"	" 11 x 14,	.	.	.	.	.	.	75

GELATINE SKINS.

3460.	GELATINE SKINS.	Package 2 Dozen,	$3\frac{1}{4}$ x $4\frac{1}{4}$,	.	.	.	.	.	.	\$0 20
3461.	"	"	" 4 x 5,	.	.	.	.	.	.	25
3462.	"	"	" $4\frac{1}{4}$ x $5\frac{1}{2}$,	.	.	.	.	.	.	30
3463.	"	"	" $4\frac{1}{4}$ x $6\frac{1}{2}$,	.	.	.	.	.	.	35
3464.	"	"	" $4\frac{3}{4}$ x $6\frac{1}{2}$,	.	.	.	.	.	.	40
3465.	"	"	" 5 x 7,	.	.	.	.	.	.	40
3466.	"	"	" 5 x 8,	.	.	.	.	.	.	50
3467.	"	"	" $6\frac{1}{2}$ x $8\frac{1}{2}$,	.	.	.	.	.	.	75
3468.	"	"	" 8 x 10,	.	.	.	.	.	.	1 00
3469.	"	"	" 1 " 10 x 12,	.	.	.	.	.	.	75
3470.	"	"	" 11 x 14.	.	.	.	.	.	.	1 00
3471.	"	"	" 14 x 17,	.	.	.	.	.	.	1 50

Eastman's Gelatine Skins are made especially for use in backing their American Films, are perfect for the purpose, and no others should be used. Full directions accompany each package.

3475.	RUBBER SOLUTION.	For Transferring American Films.	Per bottle,	\$0 25
3476.	PLAIN COLLODION.	" coating	" " "	50
3477.	TRANSLUCINE.	For rendering paper negatives translucent,	"	35

EASTMAN'S AMERICAN FILMS.

The American Film consists of a film of *insoluble* sensitive gelatine emulsion, attached to a paper support by means of a layer of *soluble* plain gelatine. The paper serves as a temporary support during the operations of exposure, development, fixing, and washing. After these, the film is laid down on a sheet of glass (previously coated with rubber solution and flowed with collodion), the superfluous water squeegeed from its surface and allowed to dry spontaneously after which it is placed in warm water, which dissolves the soluble gelatine layer and leaves the film on the glass. A skin of thick gelatine and glycerine is then spread over the film, and when dry it is again flowed with collodion, after which the whole is stripped from the glass ready for printing. These films being perfectly transparent are admirably adapted to enlarging upon the Permanent Bromide Paper. Full instructions for their use accompany each package.

PRICE-LIST.

CUT SHEETS.				ON SPOOLS, TO FIT THE ROLL-HOLDERS.			
3500.	3½x4½,	2-Dozen Package,	\$0 70	3510.	3¼ in. for 24 Exposures,	3½x4½	\$0 85
3501.	4 x 5,	“ “	1 00	3511.	4 “ “ “	4 x 5,	1 10
3502.	4¾x 6½,	“ “	1 50	3512.	4½ “ “ “	4½x6½,	1 55
3503.	5 x 7,	“ “	1 75	3513.	4¾ “ “ “	4¾x6½,	1 75
3504.	5 x 8,	“ “	2 00	3514.	5 “ “ “	5 x 8,	2 20
3505.	6½x8½,	“ “	2 80	3515.	6½ “ “ “	6½x8½,	3 00
3506.	8 x10,	“ “	4 00	3516.	8 “ “ “	8 x10,	4 50
3507.	10x12, 1 Dozen	“	3 00	3517.	10 “ “ “	10x12,	6 75
3508.	11x14,	“ “	4 00	3518.	11 “ “ “	11x14,	9 00

Eight-inch spools and smaller can be furnished with 48 exposures at proportionate prices.

EASTMAN'S NEGATIVE PAPER.

The Negative Paper is precisely the same as the American Film, excepting that the emulsion is coated directly upon the paper, and cannot be removed therefrom as in the Film. Negatives made with it may be printed from *without being rendered transparent*. The only advantage of oiling is to shorten the time required for printing, the grain of the paper being imperceptible in either case. When a negative is not to be oiled, it is a good plan to coat it on both sides with plain collodion. This gives the paper a glazed surface, and prevents soiling in printing.

PRICE-LIST.

CUT SHEETS.				ON SPOOLS, TO FIT THE ROLL-HOLDERS.			
3520.	3½x4½,	2 Doz. in Pkge.,	\$0 65	3530.	3¼ in. for 24 Exposures,	3½x4½	\$0 90
3521.	4 x 5,	“ “	90	3531.	4 “ “ “	4 x 5,	1 00
3522.	5 x 7,	“ “	1 55	3532.	4¾ “ “ “	4¾x6½,	1 80
3523.	5 x 8,	“ “	1 75	3533.	5 “ “ “	5 x 8,	2 00
3524.	6½x8½,	“ “	2 45	3534.	6½ “ “ “	6½x8½,	2 70
3525.	8 x10,	“ “	3 50	3535.	8 “ “ “	8 x10,	4 00
3526.	10x12, 1 Doz.	“	2 60	3536.	10 “ “ “	10x12,	6 00
3527.	11x14,	“ “	3 50	3537.	11 “ “ “	11x14,	8 00

Eight-inch spools and smaller can be furnished with 48 exposures at proportionate prices.

PERMANENT BROMIDE PAPER.



This paper, by the Eastman Co., is adapted to the production of the highest grade of artistic prints, by contact or with a lens, and by day or lamp light. It is made in three grades, as follows:

A. Smooth surface, thin, for positive printing, copying drawings, etc., by contact.

B. Smooth surface, heavy, for contact printing, or enlargements and working in ink, oil, and water colors.

C. Rough surface, heavy, for plain enlargements, and for working in crayon, ink, water colors, and oil.

After exposure it is developed with Ferrous Oxalate, and fixed precisely as an ordinary negative, the result being a *permanent* print, resembling in tone and general appearance a fine steel engraving or India ink drawing, according to the character of the negative.

CUT SHEETS. A, B, or C.

No.						PRICE.
3550.	PERMANENT BROMIDE PAPER,	3½ x 4½,	per dozen,	.	.	\$0 25
3551.	"	4 x 5	"	.	.	40
3552.	"	4½ x 5½	"	.	.	55
3553.	"	5 x 7	"	.	.	65
3554.	"	5½ x 7	"	.	.	75
3555.	"	5 x 8	"	.	.	75
3556.	"	6½ x 8½	"	.	.	1 10
3557.	"	8 x 10	"	.	.	1 50
3558.	"	9 x 11	"	.	.	1 85
3559.	"	10 x 12	"	.	.	2 25
3560.	"	10 x 14	"	.	.	2 65
3561.	"	11 x 14	"	.	.	3 00
3562.	"	14 x 17	"	.	.	4 50
3563.	"	16 x 20	"	.	.	6 00
3564.	"	17 x 20	"	.	.	6 40
3565.	"	18 x 22	"	.	.	7 50
3566.	"	20 x 24	"	.	.	9 00
3567.	"	25 x 30	"	.	.	14 00
3568.	"	30 x 40	"	.	.	22 50

ON SPOOLS. A, B, or C.

3575.	PERMANENT BROMIDE PAPER,	10 inches wide,	per yard,	.	.	56
3576.	"	11	"	.	.	62
3577.	"	12	"	.	.	68
3578.	"	14	"	.	.	79
3578*.	"	18	"	.	.	1 00
3579.	"	20	"	.	.	1 12
3580.	"	22	"	.	.	1 24
3581.	"	24	"	.	.	1 35
3582.	"	25	"	.	.	1 40
3583.	"	30	"	.	.	1 68

Not less than ten yards furnished on a spool.

EUREKA BROMIDE PAPER.

The Eureka Bromide paper is more sensitive than Permanent Bromide, and thus is especially adapted to the production of enlargements by lamp light. It is made in three grades, as follows:

No. 1. *Thin Smooth*, for positive printing, copying drawings, or by contact.

No. 2. *Heavy Smooth*, for contact printing and working in India ink, water colors, and oil.

No. 3. *Heavy Rough*, for plain enlargements, and for working in India ink, sepia, water colors, and oil.

The manipulation of the Eureka paper is precisely the same as that of the Permanent Bromide, excepting that it requires less than half the exposure necessary for the latter, hence care must be exercised not to overexpose.

PRICE-LIST.

No.	CUT SHEETS Nos. 1, 2, OR 3.					PRICE.
3585.	EUREKA BROMIDE PAPER,	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$,	per dozen,	.	.	\$0 15
3586.	"	"	4 x 5,	"	.	25
3587.	"	"	4 $\frac{1}{4}$ x 5 $\frac{1}{2}$,	"	.	30
3588.	"	"	4 $\frac{1}{4}$ x 6 $\frac{1}{2}$,	"	.	33
3589.	"	"	4 $\frac{3}{4}$ x 6 $\frac{1}{2}$,	"	.	35
3590.	"	"	5 x 7,	"	.	40
3591.	"	"	5 x 7 $\frac{1}{2}$,	"	.	42
3592.	"	"	5 x 8,	"	.	45
3593.	"	"	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$,	"	.	65
3594.	"	"	8 x 10,	"	.	90
3595.	"	"	10 x 12,	"	.	1 35
3596.	"	"	10 x 14,	"	.	1 60
3597.	"	"	11 x 14,	"	.	1 80
3598.	"	"	12 x 15,	"	.	2 00
3599.	"	"	14 x 17,	"	.	2 70
3600.	"	"	16 x 20,	"	.	3 60
3601.	"	"	17 x 20,	"	.	3 85
3602.	"	"	18 x 22,	"	.	4 50
3603.	"	"	20 x 24,	"	.	5 50
3604.	"	"	22 x 27,	"	.	7 00
3605.	"	"	24 x 30,	"	.	8 25
3606.	"	"	25 x 30,	"	.	8 50
3607.	"	"	24 x 36,	"	.	10 00
3608.	"	"	30 x 40,	"	.	13 50

ON SPOOLS FOR ENLARGING.

3610.	EUREKA BROMIDE PAPER,	10 inches wide,	per yard,	.	.	\$0 33
3611.	"	"	11	"	"	37
3612.	"	"	12	"	"	40
3613.	"	"	14	"	"	47
3614.	"	"	16	"	"	54
3615.	"	"	18	"	"	60
3616.	"	"	20	"	"	67
3617.	"	"	22	"	"	74
3618.	"	"	24	"	"	81
3619.	"	"	25	"	"	84
3620.	"	"	30	"	"	1 00
3621.	"	"	31	"	"	1 05

Not less than Ten Yards on a Spool.

EASTMAN'S TRANSFEROTYPE PAPER.

For making bromide of silver positives, transferable to opal glass, plaques, tiles, lamp shades, canvas, lantern slides, window transparencies, engravers' blocks, etc., etc., also for *glacé prints*.

Contact or enlarged prints are made upon this paper in precisely the same manner as upon the well-known "Permanent Bromide Paper" (the same emulsion being used for both). After washing, the print is laid face down upon the object to which it is desired to transfer the picture; after drying under pressure, the paper is removed by the application of hot water, leaving the print upon the object where it was dried. The operation is simple, easy, and certain, and the results

SURPASSINGLY BEAUTIFUL.

By this process, opals, window and lantern transparencies, can be made with less trouble and cost than by any known process.

PRICES OF EASTMAN'S TRANSFEROTYPE PAPER.

CUT SHEETS.

No.						PRICE.
3622.	EASTMAN'S TRANSFEROTYPE PAPER,	3½ x 4½,	1 doz. package,	.	.	\$0 25
3623.	"	"	4 x 4,	"	.	35
3624.	"	"	4 x 5,	"	.	40
3625.	"	"	4½ x 5½,	"	.	50
3626.	"	"	5 x 5,	"	.	50
3627.	"	"	5 x 7,	"	.	65
3628.	"	"	6 x 6,	"	.	75
3629.	"	"	6½ x 8½,	"	.	1 10
3630.	"	"	8 x 10,	"	.	1 50
3631.	"	"	10 x 12,	"	.	2 25
3632.	"	"	11 x 14,	"	.	3 00
3633.	"	"	14 x 17,	"	.	4 50

OTHER SIZES TO 30x40 IN PROPORTION.

A sample print ready to transfer sent on receipt of 10 cents in stamps.

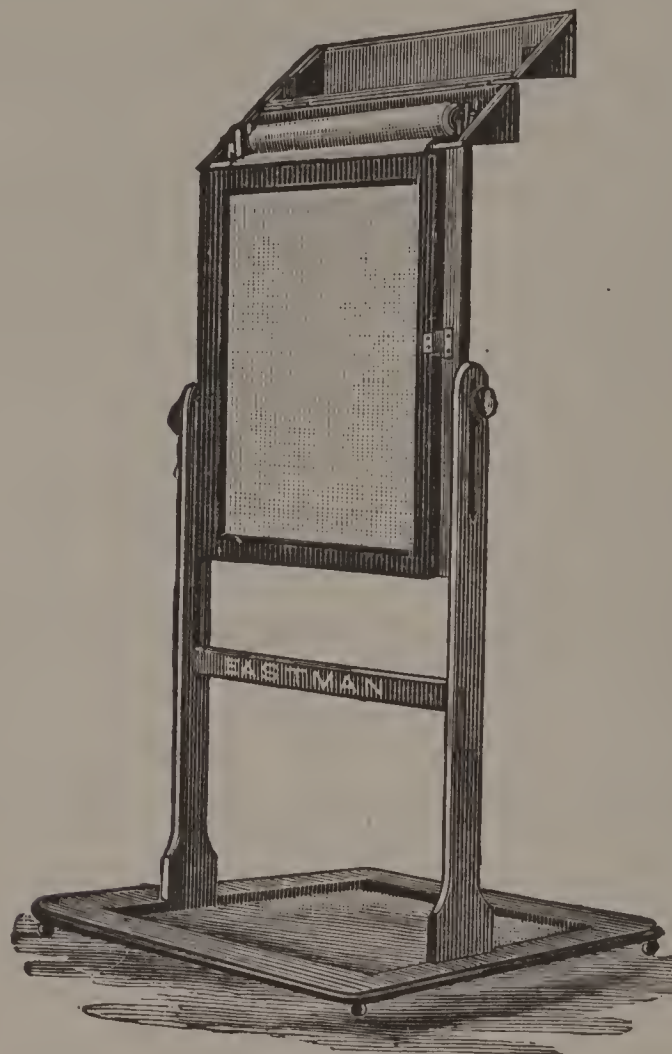
OPAL GLASS PLAQUES,

SELECTED AND FINELY GROUND ON ONE SIDE.

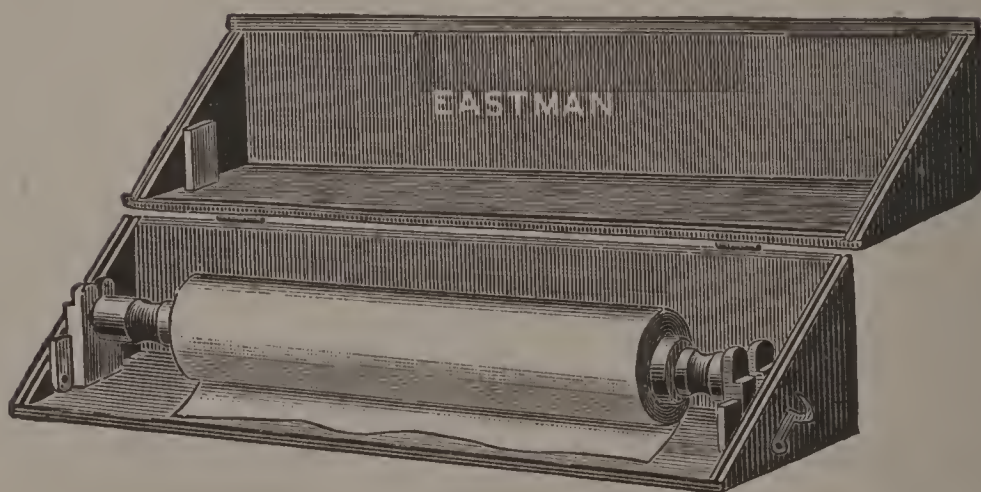
3635.	OPAL GLASS PLAQUE,	3½ x 4½.	Per dozen,	.	\$0 60.	Each,	.	.	\$0 05
3636.	"	4 x 4.	"	.	60.	"	.	.	05
3637.	"	4 x 5.	"	.	72.	"	.	.	06
3638.	"	4½ x 6½.	"	.	1 08.	"	.	.	09
3639.	"	5 x 5.	"	.	96.	"	.	.	08
3640.	"	5 x 7.	"	.	1 20.	"	.	.	10
3641.	"	6 x 6.	"	.	1 32.	"	.	.	11
3642.	"	6½ x 8½.	"	.	2 04.	"	.	.	17
3643.	"	8 x 10.	"	.	2 88.	"	.	.	24
3644.	"	10 x 12.	"	.	4 32.	"	.	.	36

A sample Plaque with beautiful print sent on receipt of 25 cents in stamps.

EASTMAN'S ENLARGING EASELS.



Nos. 3650-3653.

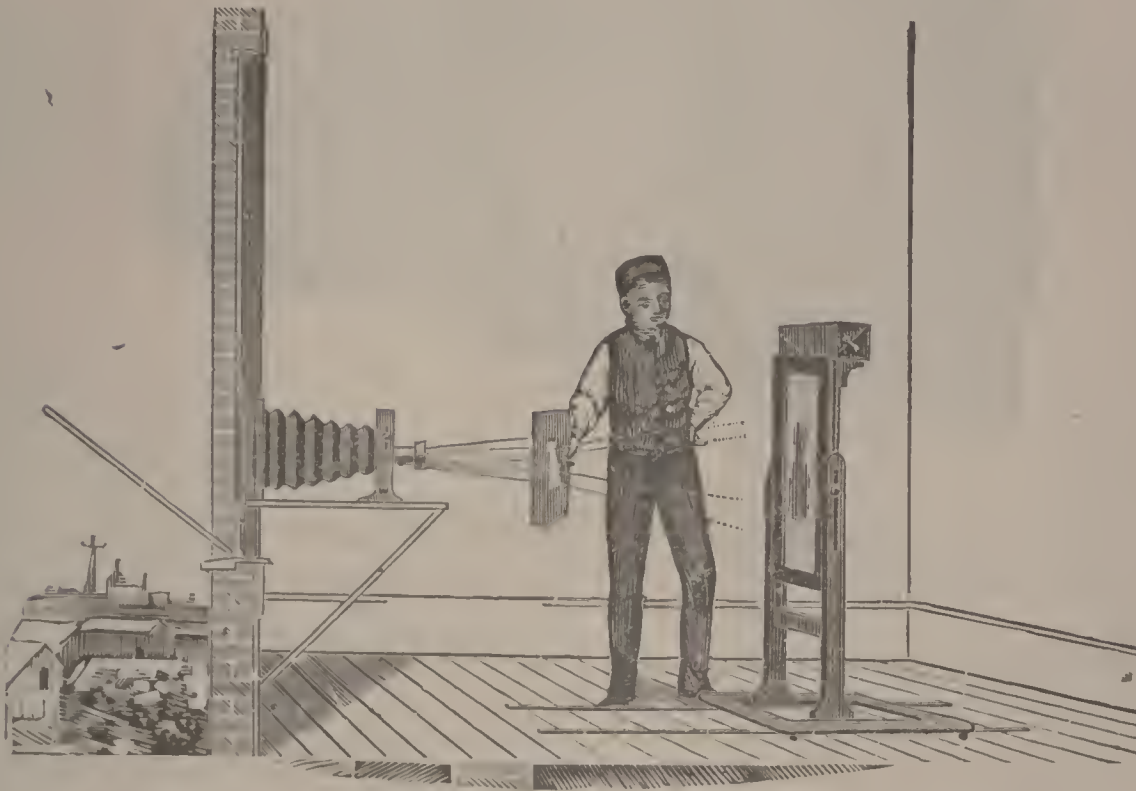


ROLL HOLDER OF ENLARGING EASEL.

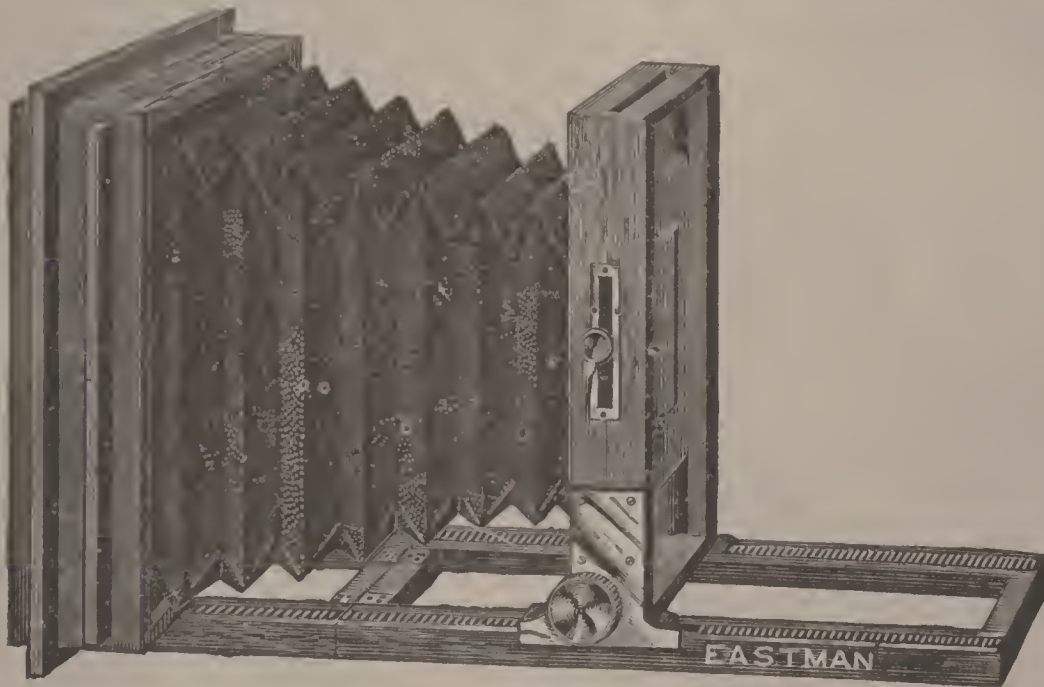
This apparatus is intended for use with enlarging cameras or lanterns, and consists of an easel made to stand upon the floor, and carrying a spool holder fixture. For use, the Bromide Paper is drawn down like a curtain and fastened on the face of the easel. When not in use the spool of paper is inclosed light-tight in the holder.

No.									PRICE.
3650.	EASEL AND SPOOL HOLDER, No. 1, up to and including 12½ inches,								\$7 50
3651.	"	"	"	"	No. 2,	"	"	17	10 00
3652.	"	"	"	"	No. 3,	"	"	22	12 50
3653.	"	"	"	"	No. 4,	"	"	25	15 00

EASTMAN'S ENLARGING CAMERAS.



METHOD OF USING ENLARGING CAMERA AND EASEL.

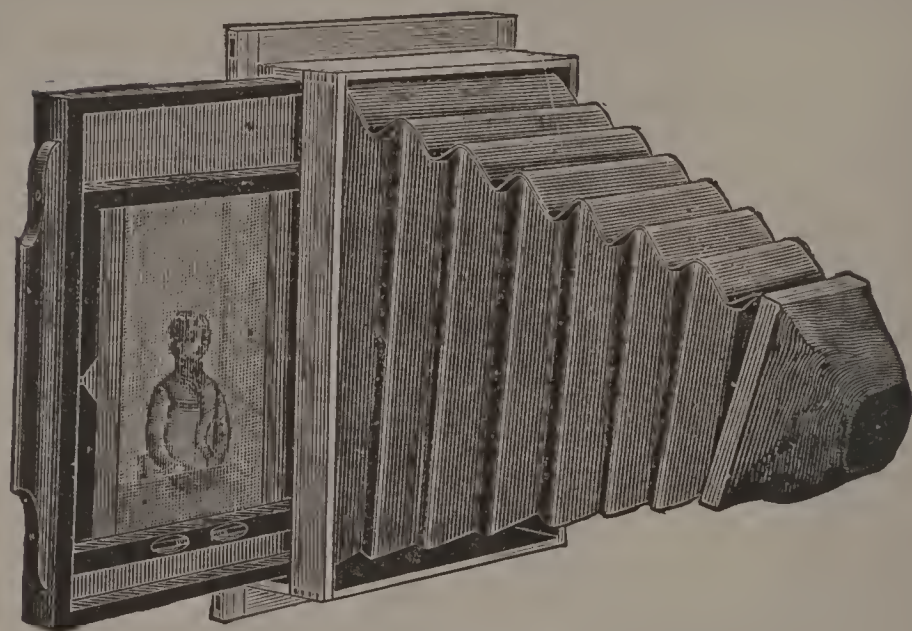


No. 3655.

No.		PRICE.
3655.	ENLARGING CAMERA 8x10, with Kits that size and under,	\$25 00

With one of these cameras and an enlarging easel, any one may make enlargements from small negatives upon the Permanent Bromide Paper equal to prints direct from negatives. Any lens large or small may be used, with day or lamp light.

WINDOW BOX FOR ENLARGING.



No. 3656.

This box is the back end and bellows of the Eastman Enlarging Camera, and it is intended for use in connection with another camera.

No.		PRICE.
3656.	Window box complete with ground glass bellows, and adjustable carrier for negatives 3¼x4¼ to 8x10,	\$12 50

NO. 1 ENLARGING OUTFIT.

3657.	{	1 5x8 Eastman Enlarging Camera, for negatives 3¼x4¼ to 5x8	.	\$20 00
		1 No. 1 Easel,	.	7 50
		1 Kit, 10x12 inside,	.	66
		1 " 8x10 "	.	60
		Total for complete outfit,	.	<u>\$28 76</u>

PLANO-CONVEX CONDENSERS.

Mounted in wood with extra fine ground glass, to fit Eastman's Enlarging Camera.

No.		PRICE.
3658.	8 in. diameter, per pair,	\$18 00
3659.	10 in. " "	30 00

TIMES OF ENLARGEMENT.

TOTAL DISTANCES FROM NEGATIVE, IN INCHES.

Focus of Lens	2		3		4		6	
	To Easel.	To Camera.	To Easel.	To Camera.	To Easel.	To Camera.	To Easel.	To Camera.
6 inches.	27	9	32	8	37½	7½	49	7
8 "	36	12	42⅔	10⅔	50	10	65⅓	9⅓
10 "	45	15	53⅓	13⅓	62½	12½	81⅔	11⅔
12 "	54	18	64	16	75	15	98	14

From the foregoing table it will be seen that the total distance required for working the easel when making a six times enlargement and using a 12-inch lens is less than ten feet. For heads from cabinet negatives a six-inch focus lens is quite large enough, and when such a lens is used for life-size heads, they can be made in a space of less than *five feet*.

THE LENS.

Any lens that will make a negative can be used for enlarging, and the proper size for the lens depends wholly upon the negative to be enlarged from, and not at all upon the enlargement to be made. If the lens will cover the negative, it will make an enlargement from it of any size.

THE LIGHT.

DAYLIGHT.—The enlarging apparatus is especially constructed, and the Standard Paper especially adapted for use with daylight, a long series of experiments with various kinds of light having demonstrated that, except in cases where a large number of enlargements are to be made each day, daylight is the best.

When the camera is set up for daylight, unless it commands an unobstructed view of the horizon, a reflector of white cloth or paper, or, better still, a mirror, should be arranged outside the window so as to throw the light from the sky on to the ground glass. To ascertain whether it is in its proper place, take out the lens and examine the ground glass from inside the dark room; if it appears evenly illuminated it is sufficient. No harm will result if the sun shines on the ground glass and reflector, provided it strikes evenly; if the light is too strong the lens can be stopped down; when a mirror is used, it should be covered with white paper when the sun strikes it.

MAGIC LANTERNS, with oil burners, will answer for enlarging from card negatives up to three or four times, but no lantern is suitable unless it has double condensers and a powerful burner.

HINTS.

MEALY MOTTLED PRINTS.—Over-exposure and short development.

GREENISH TONES are obtained by over-exposure and too much bromide.

FORCING DEVELOPMENT does not give good results for the above reason.

FACE OF PERMANENT BROMIDE PAPER can always be distinguished by its curling in. Convex side is always the back.

FIXING.—The operator can tell when a bromide print is fixed, by looking through it or upon it in a good light; unfixed portions will be greenish yellow.

YELLOW PRINTS.—Prolonged development will cause yellow prints by depositing iron in the paper. The exposure must be correct, so as to allow of quick development.

DON'T.

DON'T use old hypo for fixing.

DON'T use the developing dish for fixing.

DON'T put the prints between blotters to dry.

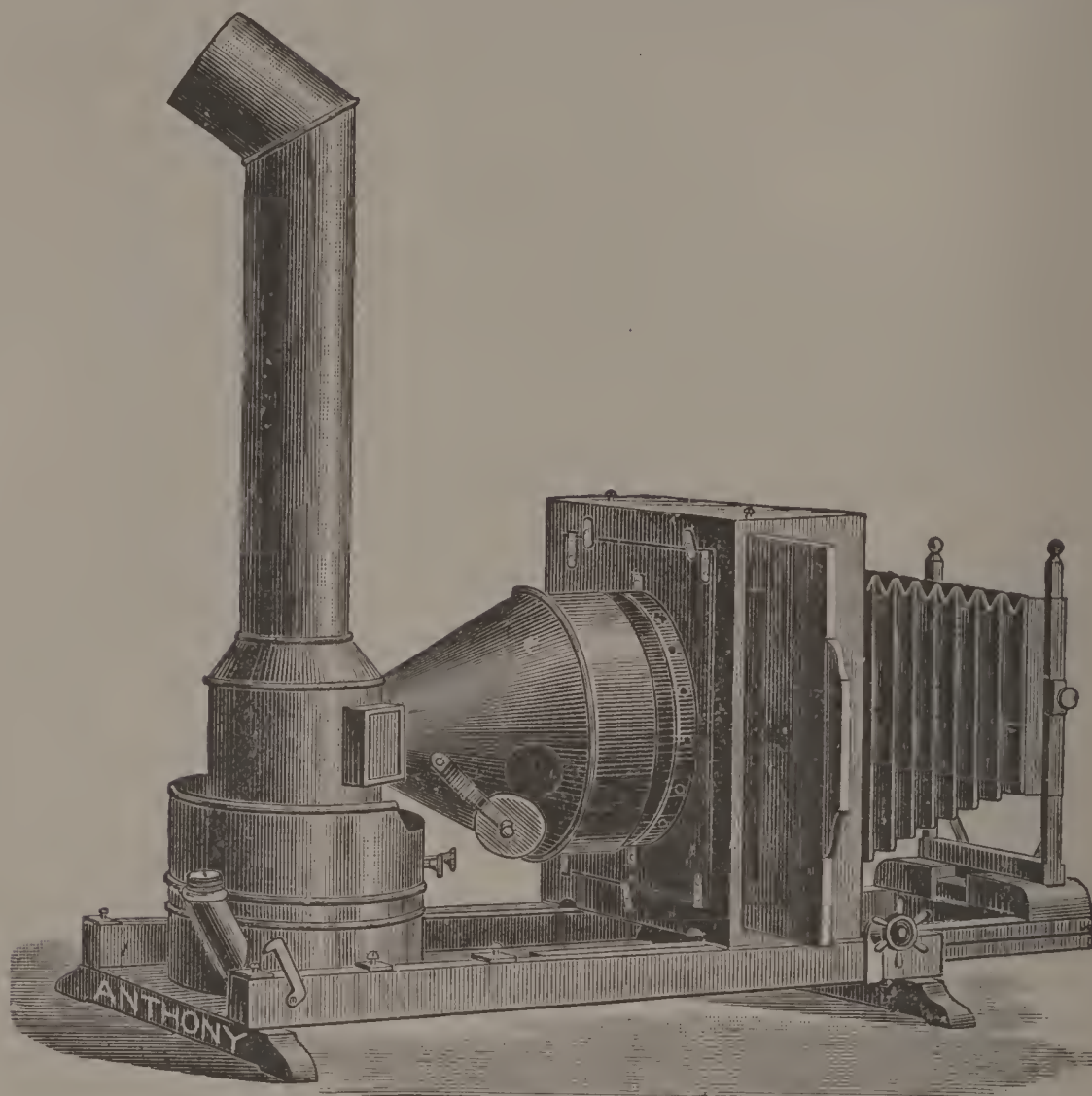
DON'T fail to rock the tray well while developing.

DON'T rock in one direction only, unless you want streaky prints.

DON'T fail to lift the print up and turn it over in the clearing solution.

DON'T let a jet of water play on the paper while washing; it will cause blisters.

COOPER'S UNIVERSAL ENLARGING LANTERNS.



Nos. 3670-3671.

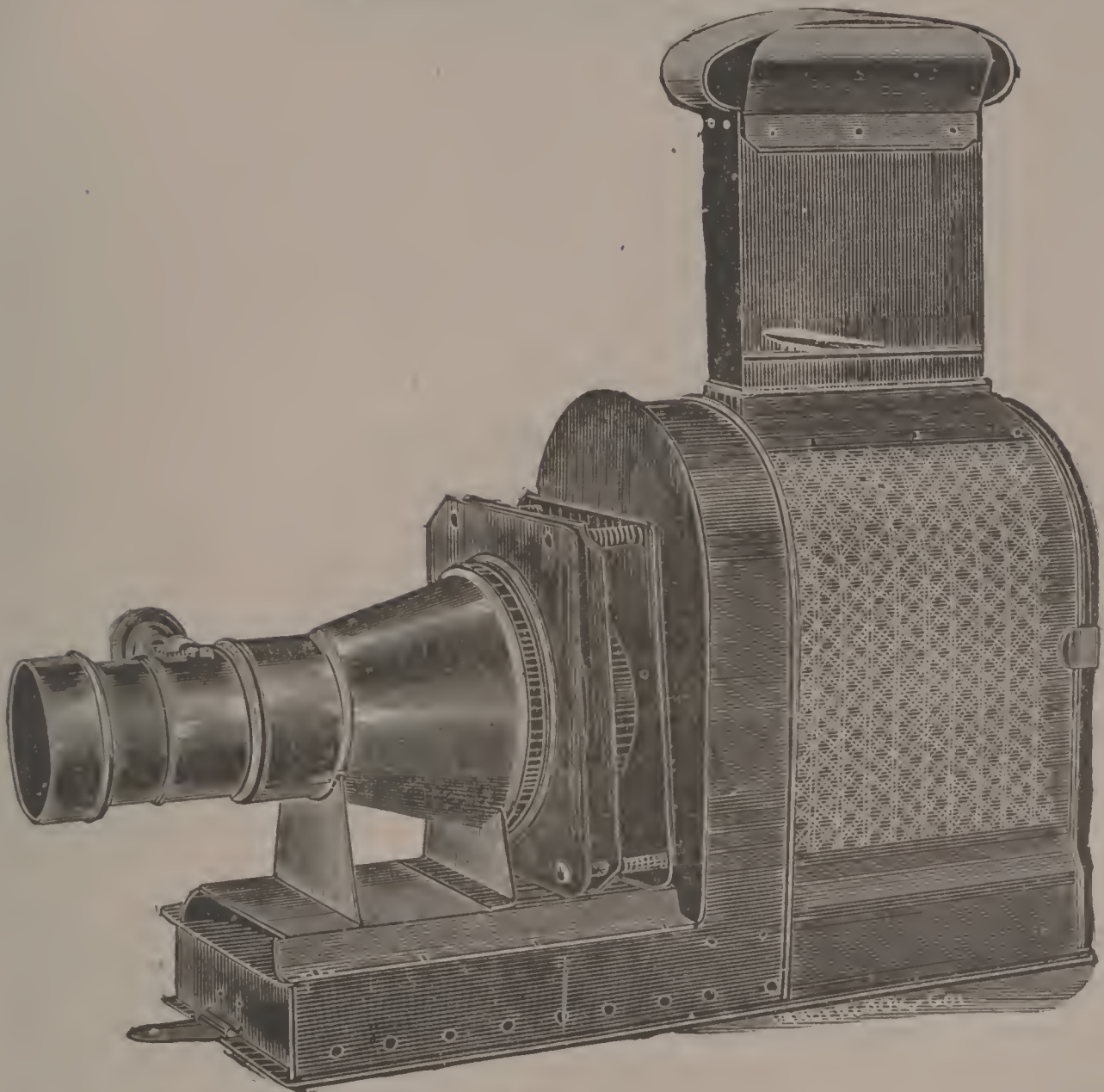
No.		PRICE.
3670.	COOPER'S ENLARGING LANTERN, with two 5½ inch condensers,	\$40 00
3671.	“ “ “ “ 9 “ “	80 00

The Lamp, which is intended for use with kerosene, is provided with a double-wick burner, both flames emerging through a single aperture in the dome. This feature increases the volume of light two-fold; the burner is provided with a close-fitting chimney-base fitted with an aperture covered with non-actinic glass, intended both for dark-room illumination and observing the height of the flames. A conical light conductor connects the Lamp with the condensing lenses and is telescopic, so as to adjust the light accurately to the focus of the condensers.

The Lamp is not rigid, but can be revolved so as to bring the flame to any desired position. Some negatives require a more intense illumination than others, and experience will show how to arrange the light for any particular occasion.

Any double combination lens may be used as an objective with this lantern. A Darlot Portrait Lens is admirable for enlarging portraits, whilst a Rectilinear Lens is best for landscapes and architecture. With a half-size Portrait Lens and half-inch stop, life-size enlargements from cabinet negatives may be easily made with Permanent Bromide Paper in from one to two minutes, according to density of negative. The camera can readily be detached from the lantern and used for daylight enlargements, or by the addition of an adapter, double dry-plate holder, and ground-glass, can be transformed into an 8x10 portrait or copying camera at an extra cost of \$10.00.

THE UNIVERSAL LANTERN.



No. 3675.

No.	PRICE.
3675. THE UNIVERSAL OPTICAL LANTERN, Complete,	\$35 00

One of the most delightful experiences in the work of the Amateur Photographer is the making of transparencies from his successful negatives, since they are not only far more perfect than any paper prints, but can be made during the long winter evenings, by lamp or gas light. No pleasanter entertainment can be given at home than the exhibition of these transparencies projected upon a screen or white wall by means of an Optical Lantern of good quality. But this is of the first importance. A dim, uneven light, or imperfectly corrected lenses, such as are unfortunately too often foisted upon the unwary purchaser, will never give satisfactory results, and disappointment is sure to follow their use.

The Universal Lantern is simply a perfect optical apparatus, with equally perfect illuminating qualities. The body is constructed of the best Russia sheet iron and thoroughly ventilated. The lamp has three flat wicks, presenting their edges to the condenser, so that the whole depth of the flame is utilized. The combustion is so perfect that the oil holder never becomes even warm. The lens is of first-rate quality, provided with rack and pinion focusing arrangement, and is capable of doing good photographic work, as well as that of projection. The condensers are four inches in diameter. The whole is packed in a sheet-iron case with lock. It is of French manufacture.

THE PAMPHENGOS LANTERN.

Illustration in next edition.

No. 3680.

No.	PRICE.
3680. THE PAMPHENGOS OPTICAL LANTERN, in Sheet-iron, Complete, .	\$50 00
3681. THE PAMPHENGOS OPTICAL LANTERN, in Mahogany, Complete,	60 00

The Pamphengos is of English manufacture, and is without doubt the most perfect Optical Lantern ever made. The lamp has four wicks arranged as in the Universal, the light from which is sufficient to illuminate well a disk twelve feet in diameter. The combustion is perfect, as is the ventilation, and the oil-holder is always cool. The lantern body has doors on both sides and handsome solid brass front with improved brass spring slide holders, which admit of the slides being inserted at the top as well as at the sides; hinged door at the back, with blue glass sight-hole fixed in brass flange to enable the operator to observe and regulate the flame while exhibiting. To the fronts are attached elegant solid brass draw tubes, which can be extended from four to seven inches, with solid brass screw flange for adapting the front lenses, which are double combination, two inches in diameter, giving a beautifully flat field. The lens is mounted in brass and is of medium focus, to enable it to be used at suitable distances in various sized rooms. To the outer jacket is fitted improved rackwork, with double pinions for working either side, which is a great convenience. The four-inch improved double condensers, are set in brass screw cells, with openings at top to allow air to pass between to prevent condensation on the lenses, which keeps them cool and lessens their liability to crack. In addition, the lantern is arranged to have any form of limelight jet, also a groove for it to run in when using the same. The whole is packed in black japanned case, with leather handle.

Handsome polished mahogany bodies, bound together with brass screws, with doors either side, having blue glass sight-holes fixed in brass circular flanges, white porcelain door knobs and brass buttons for fastening same, are furnished at additional price as above.

INDOOR PORTRAITURE FOR AMATEURS.

BY L. P. FERRIS, AMATEUR PHOTOGRAPHER.

To those Amateurs not possessed of a skylight, the question of how to obtain a good indoor portrait is very puzzling, and has led to the spoiling of a great many plates and to the production of some hideous looking faces, struck by lightning on one side and by midnight on the other. I propose in this article to give such directions as will enable any one who is skillful in outdoor photography to make a better portrait in an ordinary room than can be made in the open air. In fact, there is no reason why as perfect a portrait cannot be made in an ordinary room as in a "gallery," except the lack of skill on the part of the operator.

TO MAKE A BUST, CABINET, OR HALF LENGTH. LIGHT.

The first attempt is generally made in the room having the largest number of windows, all of which are opened to their fullest capacity, which only results in complete failure. The room preferable, is one on the second floor or higher, and on the light side of the house. Close the blinds, or lower the shades in such a way as to exclude the light from all windows but one. This window should be selected in such part of the room as will allow working space on both sides of it. A corner window with the side wall close to it is objectionable, for the reason that a background would be so near to the sitter that a shadow of the figure would be made upon it. Now having the window open and the shade rolled all the way up, if there is sunlight or even a strong light upon it, darken the lower half by unhangng the shade (if convenient) and placing the roller upon the top of the lower sash. Allow the shade to fall to the sill, or hang anything over the lower sash that will exclude the light. If the subject is of very dark complexion, a piece of muslin would answer better than something opaque, as it would diffuse light over the face in addition to that obtained from above. If the clothing or drapery is very dark, it is well to obstruct the light from the lower sash just opposite the face, and let it pass through below, so as to light up from the neck down; this will insure detail in the drapery. Never allow sunlight to fall upon any part of the sitter. If the sunlight is very strong at the upper part of the window, a piece of cheese cloth or such light material may be placed over it, but not anything heavier. Now place a chair for posing the sitter about eighteen inches from the window, and so that the front of the seat is about one foot back of the line of the side of the window; this will bring the knees on a line with the side of the window.

Having seated the person, look at the head, and you will find the light falling strongest on the top, and at an angle of about forty-five degrees, *i. e.*, striking the forehead on the side toward the window and passing down toward the lower opposite side of the face, throwing the shadow of the nose upon the side of the upper lip; thus you have the skylight effect. When the eye becomes a little practiced you will know whether a better effect is produced by moving the sitter a little forward or back, a little closer to the window or away from it. If a three-quarter face is to be made, the light may be strongest on the small side of the face by having it turned a little away from the window; this would be a "Rembrandt." If the light is wanted upon the larger side of a three-quarter face, then let it be turned a little toward the window. Always have the eyes looking straight ahead—not to one side. Place the sitter as far back on the seat of the chair as possible, then make a small roll of clothing, or take a thick book and place between the back of the chair and the back of the sitter, behind the shoulder blades. This will throw the chest and shoulders forward. Don't be deceived by the notion that a person must sit comfortably and "naturally" to

make a good portrait. Of course, make him as comfortable as possible under the circumstances. Be sure to have the chin high enough and the line of the face (as shown against the background) perpendicular. Use a head rest or not, as you like; I never do, and seldom suffer for it. No one likes the sensation of having it against the head. If you are making a three-quarter face, let the body be square with the camera; if a full face, turn the body—preferably, toward the window. If a profile, place the chest, shoulder, or even back, toward the camera. All that I have said may be varied according to the taste and judgment of the operator. If the side of the face away from the window is too dark (which is almost always the case) place a sheet, or anything white, and about one yard square, in such a way (not nearer than three feet) as to reflect a light upon this side of the face. The danger is of throwing too much light upon this side, making the face flat and destroying all contrast. Be careful to have the sheet held or placed in such a manner as not to be reflected in a large white spot upon the eye of the sitter.

POSITION OF CAMERA.

The camera should, of course, be placed close to that side of the room in which the window is located, so that a line from the lens to the sitter would be parallel with the wall in which the window is.

Raise the tripod so that the bottom of the camera is on a line with the top of the sitter's head, then incline the camera-front toward the subject so that the face on the ground glass is below a line drawn horizontally across the middle of the glass; the line should cross under the chin, or lower. Upon looking at the presentation upon the ground glass it will be readily seen whether there is a good light upon the sitter or not. Focus upon the eye, the eyelashes if possible. Use about the medium-sized diaphragm, or f to f , according to light.

$\frac{\quad}{8} \quad \frac{\quad}{16}$

BACKGROUND.

The most suitable background is something of a drab, or light slate color, placed as already referred to, so far back as to prevent the possibility of a shadow of the sitter being thrown upon it. A window-shade of the right color makes a good background, or a piece of muslin coated with whitewash, to which a little lamp-black and glue have been added. Mix the lamp-black separately before adding to the whitewash.

The more rapid the plate the better; expose from three to six times as long as out door, according to light; a long exposure followed by a slow development gives the best results.

GROUPS.

Groups of from three to eight persons may be made successfully in an ordinary room. Select a large window with the sun upon it, raise the shade, and place an ordinary sheet over the whole window. Place the group in the diffused light. If the light is not strong enough, open one more window and throw a small sheet upon the floor where the sun will fall upon it, but ordinarily it is better to use only one window. Use a little smaller diaphragm than for a portrait, and expose a "Diamond" or "Special" plate twenty seconds. Don't hurry the development. No background is necessary, but if the side of the room back of the group is of a light appearance, it is better than dark colors. With the above instructions the operator should reach success by a short route and with less study and at less expense than it has cost the writer. I have not given reasons for all the suggestions above, as they would consume too much space. My experience has satisfied me that these directions followed with judgment will result in pleasing effects and open a new field to many amateurs.

STANDARD FORMULÆ.

FERROUS OXALATE DEVELOPERS.

EASTMAN'S.

No. 1.				No. 2.			
Oxalate of Potassium,	.	1 pound		Protosulphate of Iron,	.	1 pound	
Hot Water,	.	48 ounces		Hot Water,	.	32 ounces	
Acetic Acid,	.	3 drachms		Acetic Acid,	.	$\frac{1}{2}$ drachm	

No. 3.

Bromide of Potassium,	.	1 ounce		Water,	.	.	.	.	1 quart
<i>Filter all solutions.</i>									

To DEVELOP. No. 1, 3 ounces; No. 2, $\frac{1}{2}$ ounce; No. 3, $\frac{1}{4}$ drachm.

ANOTHER.

No. 1. Saturated Solution Neutral Oxalate of Potash. Filter.

No. 2. Saturated Solution Protosulphate of Iron, with one drop of Sulphuric Acid or one drop of a Saturated Solution of Citric to each ounce of the Iron Solution. Filter.

To use, add one part No. 2 to six parts of No. 1 for ordinary exposure. For instantaneous, one part No. 1 to four parts No. 2. If over-exposed, add at once a few drops of a solution of Bromide of Ammonium, which should always be kept for the purpose.

ANOTHER.

No. 1.—POTASSIC OXALATE SOLUTION.

Potassic Oxalate (neutral),	.	8 ounces		Water,	.	.	.	.	32 ounces
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Dissolve the Oxalate in the water heated to boiling, and filter. The solution should be tested with blue litmus paper; if it is not slightly acid, add sufficient Oxalic Acid to render it so.

No. 2.—IRON SOLUTION.

Sulphate of Iron (pure),	.	2 ounces		Sulphuric Acid,	.	.	15 drops
Water,	.	8 "					

After the solution has settled, decant and use only the clear supernatant portion.

No. 3.—BROMIDE SOLUTION.

Bromide Potass.,	.	.	30 grains		Water,	.	.	.	2 ounces
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To make the developer, take

No. 1 Solution,	.	.	.	3 ounces		No. 3 Solution,	.	.	.	5 drops
No. 2	"	.	.	4 drams						

Over-exposure may be corrected by decreasing the amount of No. 2 Solution to one and a half drams and doubling the amount of the No. 3 Solution; while under-exposure may be corrected by doubling the amount of No. 2 Solution and leaving No. 3 out of the developer.

As the developer becomes exhausted the proportion of No. 2 Solution may be increased, but the entire amount added should never exceed one-fourth of the mixture, *i. e.*, four parts of No. 1 to one part of No. 2.

ANOTHER.

No. 1.

Neutral Oxalate of Potash, . 1 pound | Water, 5 pints
Make decidedly acid with Citric Acid, and filter.

No. 2.

Sulphate of Iron, Pure, . 1 pound | Water, 2 quarts
Filter, and add sixty drops Sulphuric Acid.

To develop, take

No. 1. Oxalate Solution, . 4 ounces | No. 2. Iron, 4 drams

Always have ready a bottle of

Water, 10 ounces | Bromide Ammonium, . 300 grains

If more intensity is needed add ten drops Bromide Solution and continue the development.

Image should show through on back of plate. An over-exposed plate needs weaker developer and more Bromide Solution. An under-exposed plate needs stronger developer and less Bromide Solution.

Carry the development until image is well sunken in; don't try to hurry.

SPECIAL DEVELOPERS FOR TRANSPARENCIES.

No. 1.—OXALATE SOLUTION.

Oxalate of Potash, . . . 8 ounces | Water, 32 ounces

When dissolved, add of a strong Solution of Citric Acid sufficient to faintly change blue litmus paper, then add two hundred grains more of Citric Acid; when dissolved, filter.

No. 2.—IRON SOLUTION.

Pure Protosulphate of Iron, 4 ounces | Water, 16 ounces
Dissolve and add of Sulphuric Acid, sixteen drops.

DEVELOPER FOR BLACK TONES.

Oxalate Solution, . . . 4 parts | Iron, 1 part

DEVELOPER FOR BROWN TONES.

To the above add two or three parts water, bearing in mind what has been said about regulating the exposure to suit the developer. The development should be carried on until the detail in the strongest light of the image is well defined; then wash, and fix in clean and fresh Hypo. Solution, made by dissolving four ounces of Hypo. Soda in twenty ounces of water; place in Alum Solution a few minutes, then give a thorough washing, and before putting to dry, with a swab of absorbent cotton go over the surface while holding the transparency under the tap, rinse and place to dry spontaneously, and it is then ready to bind in the metal frames sold by dealers for that purpose.

N. B.—By leaving out the two hundred grains Citric Acid in the above Oxalate Solution, it is suitable for the ordinary Negative Developer.

ALKALINE DEVELOPERS.

No. 1 SOLUTION.

Pyrogallic Acid (Poulenc & Witt-	Distilled Water,	6 ounces
man's), 1 ounce	Nitric Acid, C. P., . . .	20 drops
Bromide Ammonium, . . 600 grains		

No. 2 SOLUTION.

Concentrated Liquid Ammonia, $\frac{1}{2}$ ounce	Distilled Water, . . .	20 ounces
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Keep both Solutions tightly corked.

To use, add one-quarter ounce No. 1 Solution to five ounces of water, and to this an equal quantity of Solution No. 2, which will be sufficient to develop several plates.

CARBONATE OF POTASH DEVELOPER.

No. 1.

Water, 12 ounces	Bromide of Ammonium, . . .	12 ounces
Sulphite of Soda, . . . 2 "	Pyrogallic Acid,	1 ounce
Citric Acid, 60 grains		

No. 2.

Water, 12 ounces	Carbonate of Potash, . . .	4 ounces
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To use, add one drachm each to two ounces of water.

SWAN'S DEVELOPER.

No. 1.

Pyrogallic Acid, 2 grains	Water,	1 ounce
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No. 2.

Liquid Ammonia, 1 ounce	Water,	80 ounces
Bromide Ammonium, . . . $\frac{3}{4}$ "		

Equal parts of 1 and 2.

NELSON'S DEVELOPER.

No. 1.

Pyrogallic Acid, 1 ounce	White Sugar,	1 ounce
Alcohol, 7 ounces	Distilled Water,	3 ounces

No. 2.

Liquid Ammonia, 4 ounces	White Sugar,	$\frac{1}{2}$ ounce
Bromide Ammonium, . . . 1 ounce	Water,	2 ounces

For half-plate take one-half drachm of No. 1 and put in developing cup. Now take one-half drachm of No. 2 and dilute with one and a half ounces of water; pour No. 2 thus diluted on to No. 1, and develop immediately.

WRATTEN'S DEVELOPER.

No. 1.

Pyrogallic Acid, 6 grains	Water,	2 ounces
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No. 2.

Liquid Ammonia, 1 ounce	Water,	2 ounces
Potassium Bromide, . . . 60 grains		

Pour on No. 1 after soaking the plate in water for a few seconds; now add five drops of No. 2, wait till high lights show themselves, and then add fifteen or twenty drops more to finish development.

ALUM BATH.

Powdered Alum, . . .	2 ounces		Water,	20 ounces
Table Salt,	1 ounce			

This form of Alum Bath is exceedingly useful with iron developed gelatine negatives, preventing any tendency to frill in hot weather and removing stains and Hypo after fixing.

HARDENING AND BLEACHING BATH.

Pulverized Alum, . . .	2 ounces		Water,	20 ounces
Oxalic Acid,	$\frac{1}{4}$ ounce			

This Bath is to be used after development with Pyro. and before fixing. It effectually removes the yellow stains so frequently accompanying Alkaline development, producing a clear, gray negative resembling one developed with iron.

TO INTENSIFY GELATINE NEGATIVES WITH MERCURY AND SODIUM SULPHITE.

Bichloride of Mercury, saturated solution in cold water. (The negative should be placed in alum for a short time before treatment.) Wash the negative well, and immediately pour on Mercury Solution; do not keep it on too long unless the negative is very thin. Wash well, and immerse in bath of

Water,	10 ounces		Sulphite of Soda,	1 ounce
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Leave plate in this solution until the black color goes quite through the film. Wash well. If the Mercury Solution makes the negative too dense, dilute with water.

SELECTED TONING FORMULÆ.

No. 1.

Chloride of Gold, . . .	1 grain		Water,	8 ounces
Acetate of Soda, . . .	30 grains			

This must not be used till one day after preparation. It keeps well, and gives warm, rich tones.

No. 2.

Chloride of Gold, . . .	1 grain		Water,	8 ounces
Bicarbonate of Soda, . . .	4 grains			

This is ready for immediate use after preparation, but it will not keep.

No. 3.

Chloride of Gold, . . .	1 grain		Water,	8 ounces
Phosphate of Soda, . . .	20 grains			

This gives rich tones of a deep purple nature, but must be used soon after preparation.

No. 4.

Gold Solution,	10 drachms		Chloride of Lime,	1 grain
Acetate of Lime,	20 grains		Tepid water,	20 ounces

The "Gold Solution" before mentioned is prepared by neutralizing as much as is required of a one-grain solution of chloride of gold by shaking it up with a little prepared chalk, then allowing it to settle, and filtering off the clear liquid. This toning bath improves by keeping. To use, add two ounces of it to eight ounces of tepid water, which will prove sufficient to tone a full-sized sheet of paper.

No. 5.

Chloride of Gold,	15 grains		Water,	5 ounces
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Neutralize with lime water, make up to fifteen ounces with water, and add two drachms of chloride of calcium. This stock solution will keep for a long time. For use, dilute one ounce with ten ounces of water.

No. 6.

TONING AND FIXING IN ONE BATH.

Chloride of Gold, 1 grain	Hyposulphite of Soda, . . . 240 grains
Phosphate of Soda, . . . 15 grains	Water, 2 ounces
Sulphocyanide of am'ium, 25 "	

Dissolve the gold separately in a small quantity of water, and add it to the other solution.

SOLUTION FOR MOUNTING PRINTS WITHOUT THEIR COCKLING.

Nelson's No. 1 Photographic	Glycerine, 1 ounce
Gelatine, 4 ounces	Alcohol, 5 ounces
Water, 16 "	

Dissolve the gelatine in the water, then add the glycerine, and lastly the spirit.

MOUNTING SOLUTION FOR SCRAP BOOKS, ETC.

Soak half a pound best glue in cold water till soft. Melt the glue in kettle or earthen jar standing in a saucepan. When quite thin, pour in gradually Alcohol, stirring well between each addition until quite clear. Strain through coarse muslin into pickle bottles. Well cork and store away for use. When wanted, stand bottle in hot water till glue is melted.

WEIGHTS AND MEASURES.

APOTHECARIES' WEIGHT.

SOLID MEASURE.

20 Grains	= 1 Scruple	= 20 grains.
3 Scruples	= 1 Drachm	= 60 "
8 Drachms	= 1 Ounce	= 480 "
12 Ounces	= 1 Pound	= 5760 "

FLUID. Symbol.

60 Minims	= 1 Fluid Drachm	f. 3
8 Drachms	= 1 Ounce	f. 3
20 Ounces	= 1 Pint	O
8 Pints	= 1 Gallon	gall.

The above weights are those usually adopted in formulæ.

All Chemicals are usually sold by

AVOIRDUPOIS WEIGHT.

27½ Grains	= 1 Drain	= 27½ Grains,
16 Drains	= 1 Ounce	= 437½ "
16 Ounces	= 1 Pound	= 7000 "

Precious Metals are usually sold by

TROY WEIGHT.

24 Grains	= 1 Pennyweight	= 24 Grains.
20 Pennyweights	= 1 Ounce	= 480 "
12 Ounces	= 1 Pound	= 5760 "

NOTE.—An ounce of *metallic* silver contains 480 grains, but an ounce of *nitrate* of silver contains only 437½ grains.

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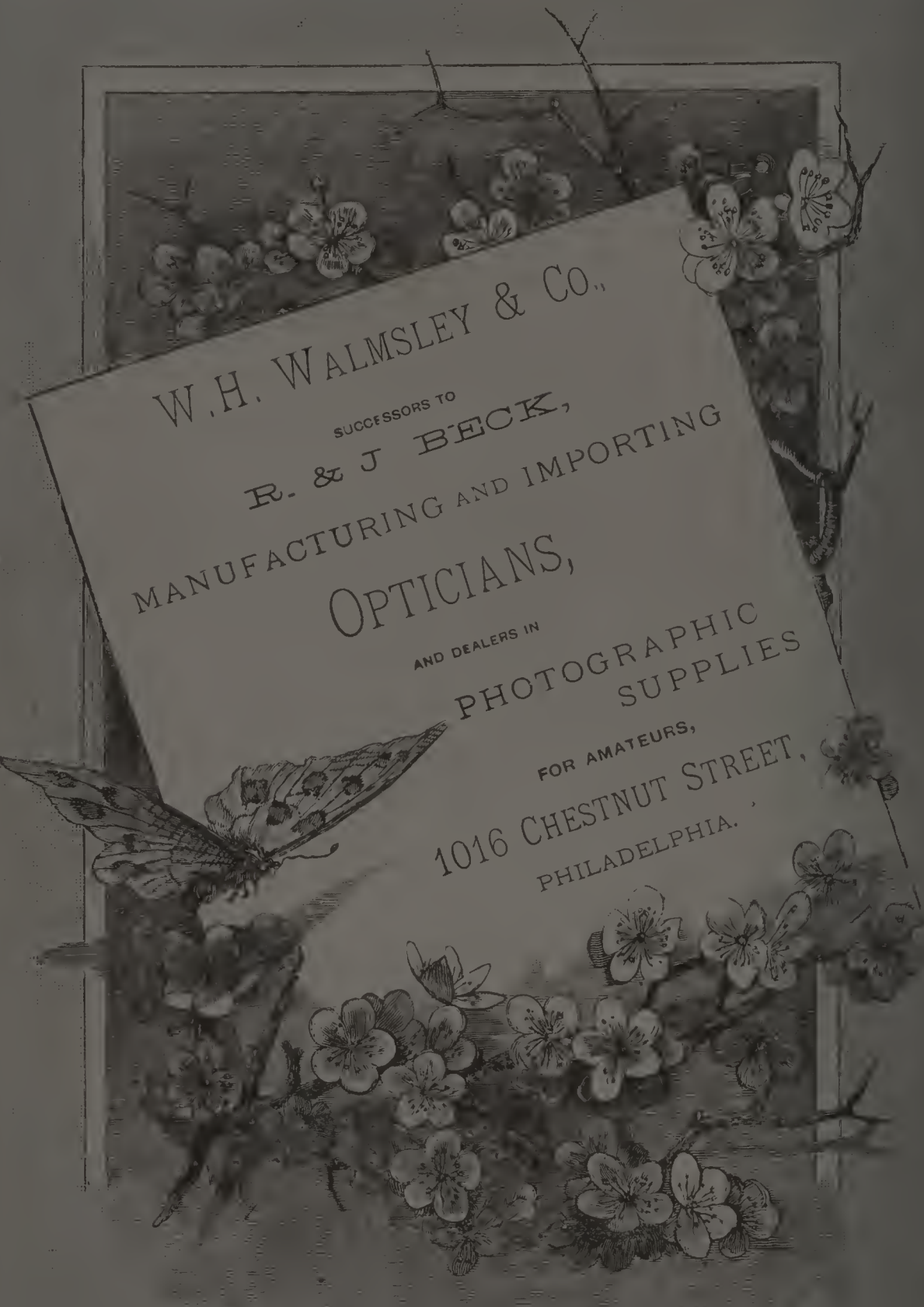
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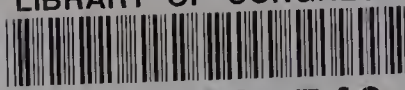
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